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TRAVELING EDUCATIONAL UNITS, A FEASIBILITY STUDY OF THE USE OF TRAVELING OR MOBILE EDUCATIONAL UNITS TO IMPROVE THE QUALITY OF EDUCATION IN APPALACHIA.

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DESCRIPTORS- *CLASSROOMS, *EDUCATIONAL ENVIRONMENT, *EDUCATIONAL EQUIPMENT, *EDUCATIONAL IMPROVEMENT, *EDUCATIONAL MOBILITY, *PLANNING, SCHOOL PLANNING, APPALACHIA

THIS STUDY WAS CONDUCTED TO DETERMINE THE FEASIBILITY OF USING TRAVELING OR MOBILE UNITS TO IMPROVE THE QUALITY OF EDUCATION IN THE APPALACHIA REGION. IT EXAMINED THE LITERATURE WRITTEN IN THE LAST TEN YEARS ON EDUCATIONAL PROJECTS USING SOME FORM OF MOBILE FACILITY. FROM THIS LITERATURE A LIST OF PLANNED MOBILE PROJECTS WAS COMPILED AND APPROPRIATE ADMINISTRATORS, AGENCIES AND EQUIPMENT MANUFACTURERS WERE SURVEYED FOR INFORMATION ON PLANNING EDUCATIONAL MOBILE UNITS. THROUGH THE OBSERVATIONS OF AN INVESTIGATOR WHO TRAVELED THROUGH THE REGION, INFORMATION WAS GATHERED TO DETERMINE EDUCATIONAL NEEDS AND THE ADVANTAGES AND DISADVANTAGES OF USING MOBILE UNITS FOR EDUCATIONAL PURPOSES. FROM THIS INFORMATION IT WAS DECIDED THAT THE EFFECTIVE CONTINUATION OF THE STUDY SHOULD BE BASED ON THE CREATION OF A CONCEPTUAL PLAN OF OPERATION. THE CONCEPTS WERE DEVELOPED SHOWING THE MANY POSSIBILITIES OF USING MOBILE UNITS TO IMPROVE EDUCATION IN APPALACHIA. WIDE SCOPE FINDINGS ARE PRESENTED THROUGH THE APPLICATION OF A SYSTEMS DEVELOPMENT CONCEPT TO THE MASTER PLAN OF A SUPPLEMENTAL EDUCATION PROGRAM. THE STUDY SHOWED THAT THE USE OF MOBILE AND TRAVELING UNITS WOULD PLAY A MAJOR ROLE IN IMPROVING THE QUALITY OF EDUCATION IN THE FUTURE. RECOMMENDATIONS FOR DEVELOPMENT OF THE PROGRAM ARE PRESENTED IN TERMS OF SERVICE TO THE PEOPLE IN THE AREA AND FUNDING. (GM)

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TRAVELING EDUCATIONAL UNITS

A Feasibility Study of the Use of Traveling or Mobile Educational Units to Improve the Quality of Education in Appalachia.

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A Study by The Architectural Engineering Department of
The Pennsylvania State University, University Park, Pa. for:

EF000098

THE APPALACHIA EDUCATIONAL LABORATORY, INC.
Charleston, West Virginia, December, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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"TRAVELING EDUCATIONAL UNITS"

A Feasibility Study of the Use of Traveling or Mobile Educational Units to Improve the Quality of Education in Appalachia.

for: Appalachia Educational Laboratory, Inc.
Box 1348, Charleston, West Virginia 25325
c/o Dr. Benjamin Carmichael, Director

by: The Pennsylvania State University
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Department of Architectural Engineering
University Park, Pennsylvania 16802

C. Herbert Wheeler, Jr., Principal Investigator
Architect and Associate Professor of Architectural Engineering

date: December 30, 1966

Abstract: The study describes a background investigation which includes (a) a search for literature on traveling educational units and an annotated bibliography of 57 references and (b) a letter survey of 185 firms and individuals which reveals that at least 19 firms manufacture mobile units and at least 77 educational projects in 36 states involve the use of one or more traveling or mobile units. It also reveals that mobile units are being used for almost every educational function in elementary and secondary schools. The study which includes a Summary of Findings, a review of Educational Needs, a discussion of Mobility as it could be adopted to improve educational opportunities in Appalachia and a "Conceptual Plan of Operations". The study shows the acceptability of mobile units and the feasibility of a system of supplemental educational programs based on the use of mobile or traveling units. The study ends with recommendations for further study of the conceptual plan and a series of approaches for instituting the program by the Appalachian Educational Laboratory.

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Acknowledgement: The Feasibility Study of the Use of Traveling or Mobile Educational Units to improve the Quality of Education in Appalachia reported herein performed pursuant to a contract with the Appalachia Educational Laboratory, Inc. and the Department of Health, Education and Welfare, Offices of Education.

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January 6, 1967

Dr. Benjamin Carmichael, Director
Appalachia Educational Laboratory, Inc.
Box 1348
Charleston, West Virginia 25325

Dear Dr. Carmichael:

Bound with this letter of transmittal are five copies of the final technical report of "Traveling Educational Units, A Feasibility Study of the Use of Traveling or Mobile Educational Units to Improve the Quality of Education in Appalachia" which is submitted in accordance with Subcontract #1, under Contract #OE C2-001677-1677 between Appalachia Educational Laboratory, Inc. and The Pennsylvania State University, dated 9-1-66.

Respectfully submitted,

C. Herbert Wheeler, Jr., Project Director
Architect and Associate Professor of
Architectural Engineering

CHW:hl
Enclosure - Above-mentioned report

A FEASIBILITY STUDY OF THE USE OF TRAVELING EDUCATIONAL UNITS TO IMPROVE THE QUALITY OF EDUCATION IN APPALACHIA - DECEMBER, 1966

SECTION 1 - OBJECTIVES

1.1 Objectives of System of Regional Educational Laboratories — The Commissioner of Education, Dr. Harold Howe II stated that he expects the Regional Laboratories to ". . . expand and accelerate the improvement of education through research, development and dissemination activities". The objective of the Laboratories are to bring together the many educational institutions within the region to form new multi-institutional large-scale Laboratories for research. He further said that "these laboratories will work in all areas and levels of education in order to study, develop and implement educational innovation". The Laboratories are also intended to bring together every other agency, public or private, that is concerned with education within the region.

1.2 Four-Step Route to Achieve Goals — It is stated in the brochure "Quality Education for Appalachia" published by the Laboratory that "these new institutions (regional Laboratories) will move toward their goals by four-step route: (a) by assessing the needs of their region through the widest possible search; (b) by utilizing research, either through designing and conducting new research or by reaping the results of previous research; (c) by implementing the findings of research through the design or redesign of teaching techniques and materials; and finally, (d) by devising and employing dissemination techniques which will insure movement towards sound educational change. Such techniques may involve demonstration of direct teacher-training, may change teacher preparation patterns, and will certainly include widespread use of all communication media".

1.3 Objectives of the Appalachia Educational Laboratory — The objective of the Appalachia Educational Laboratory is to meet the educational needs of the rural mountain region of Appalachia which consists of West Virginia, Western Pennsylvania and parts of the bordering states of Virginia, Ohio, Kentucky and Tennessee. The Laboratory will direct its primary effort towards "the goal of improving the quality of education in Appalachia". The more specific objectives of the Laboratory are as follows:

(a) to provide a communications link between the research programs going on within the region and the public and private schools which this research is intended to serve,

(b) to appraise and set priorities for the various educational research and development projects,

(c) mobilize the full range of resources essential to an effective attack on the educational problems of the region,

(d) to establish new emphasis in educational research concerned with educational "product development and dissemination" and finally

(e) to make a large-scale, long term attack on educational problems through its emphasis on programmatic research and development.

1.4 Objectives of the TEU Study — The primary objective of this study of Traveling Educational Units is to determine the feasibility of using "mobility" as an aid to regional education and more specifically to determine the feasibility of using "traveling or mobile units" to improve the quality of education in the region. In addition to providing new educational opportunities to the teachers, administrators and students of the region, this study is intended to show how the use of Traveling Educational Units (TEU) can perform the following services for the local school districts:

(a) Raise the aspiration of students thru the use of the most modern educational programs, facilities, equipment and materials.

(b) Stimulate local teachers by showing them how to integrate the units of supplemental mobile-type education into their courses of study.

(c) Assist the local teachers by demonstrating how to use specialized equipment made available by mobile units and how to improve their methods of instruction and

(d) Demonstrate to the students, teachers, administrators and parents within Appalachia that modern educational techniques can be brought into the community to combat regional isolation.

In more specific terms, the objective of the study is intended to reveal data on the following:

(e) how traveling and mobile units can be used to break down the psychological barriers which appear to confine people to the poverty pockets of the region.

(f) how traveling and mobile units can be used to speed up the process of educational innovation within Appalachia.

(g) how traveling and mobile units can be used to change attitudes and assist the youth of the region to find useful careers.

In the final analysis the study intends to show (1) the potential uses of traveling and mobile units to improve the quality of education within the region and (2) a systematic approach for incorporating traveling educational units into a program of supplemental education aimed at providing improved educational opportunities.

1.5 Similar Objectives of the Regional Laboratory Porgram and the TEU Study — To show that the objectives of the TEU Study and the Appalachia Educational Laboratory are similar, a comparison is made of the four-step route which each uses to achieve its goals. Each of the four steps are analysed as follows:

(a) "Assessing the educational needs of the region" is the first step in achieving the objective of the Regional Laboratory Program. With respect to the TEU study, the assessment includes the investigation and understanding of small two-room schools, of the lack of normal educational facilities, of the isolated pockets of student population, of rural mountain-type student and of teacher training limitations. The assessment concentrates on the problems caused by fixed school education in contrast to the probable advantages of meeting the desired educational needs thru the use of mobile and/or traveling units.

(b) "Utilizing the previous research or conducting new research" is the second step. Since mobility is a means to the end, the objective of TEU study is to examine ways and means of using traveling and/or mobile units to (1) expedite the research program of the region and (2) make possible new types of research programs which require close coordination between researchers and local school districts which can be accomplished through the use of mobility.

(c) "Implementing the findings of research" is the third step. Through a study of the use of mobility to improve education, it is intended to examine how traveling and/or mobile units can be designed and developed to not only carry improvements in education to the local school districts but also demonstrate the new techniques, the new equipment and the use of new facilities to the teachers as part of the teacher-training process.

(d) "Devising and using dissemination techniques" is the fourth step which is also a vital step in the study of TEU. It is intended to examine ways and means of using mobility effectively to insure movement toward sound educational changes. The overall objective is to make an "observable improvement in education" and, in this respect, the study is intended to reveal methods of using mobile and/or traveling units as parts of controlled experiments which can be more readily evaluated by the researchers and local teachers.

SECTION 2 - PLAN OF STUDY

2.1 Contacts with Educators - Since the Principal Investigator is an architect whose relevant experience has been in the field of designing transportable army hospital units, several school buildings and of a research-type school facility, it was deemed important to contact educators who are familiar with the educational characteristics and problems of the Appalachia region. The Principal Investigator discussed the proposed study program with educators at Pennsylvania State University to learn, in more detail, about the probable experiments in the advancement of education which could use some form of traveling or mobile units. Professor Deno Thevaos and a graduate assistant in the College of Education at Penn State assisted in the searching for literature. Dr. Harold Mitzel, Dr. William Rabinowitz, Dr. Joseph French, Dr. Edward Mattil, Dr. William Carriker, Dr. Donald McGarey, Dr. Helen Snyder and other educators offered advice in the initial phases of the study. Subsequent contacts were made with Dr. Bruce Brummitt of State College, Dr. Frances J. Pilecki and Dr. Mendelssohn Hoxie of Pennsylvania Region J; Mr. Richard Bartholomew of Pennsylvania Region H, Mr. Marlowe Froke, Director of the local educational TV station and others who assisted in (1) directing the Investigator's attention to educational innovations and (2) discussing the use of traveling educational units.

2.2 Literature Search and Annotated Bibliography - A complete literature search was made of all reference in the Educational Index for the past ten years with regard to traveling or mobile educational units. This search was annotated for future reference and then used in the search for, and the survey of, educational projects using some form of mobility.

2.3 Survey of Educational Projects using Mobile Units - By following "the Leads" provided by educators and using literature from ESEA, the State Department of Education and other sources, the Principal Investigator made a list of educational projects which appeared to be planning on the use mobile units. Requests for information were sent to over 50 project directors, 48 State Superintendents of Education and other persons to secure further knowledge of the planning or operation of educational mobile units. The survey included requests for information from Highway Associations, Museums, State Agencies, Government Agencies and equipment manufacturers, noted below.

2.4 Survey of Mobile Equipment Manufacturers - As a result of the survey of projects, the literature search and a search for the names of manufacturers and outfitters of mobile units, requests for information were sent to over 50 manufacturers and fabricators of coaches, trailers, and transportable units which are being used or being adapted for use to educational purposes. Personal contacts were made with engineers, dealers and representatives of the major equipment manufacturers to secure technical and general data on the design of mobile units.

2.5 Travel in the Appalachia Region - The Principal Investigator traveled through the Appalachia region in the states of Virginia, North Carolina, Tennessee, Kentucky, Ohio, West Virginia and Pennsylvania to gather general information on the characteristics of the communities, the roads, the terrain and the people. The travel was planned to learn about the probable problems in the movement of mobile units within the region.

2.6 Study of Educational Needs - Following the acquisition of considerable mobile project literature, news releases, project reports, project proposals and manufacturer's data, the Principal Investigator contacted educators to learn about the actual needs for educational improvement in Appalachia. Projects involving mobile units were studied and analysed. Projects within Appalachia were compared with projects in other states, especially the rural or mountain states. The projects were listed by types and grouped into categories according to function.

The actual needs for education and educational facilities were studied with regard to the problems of isolation, cultural deprivation and the basic characteristics of Appalachia.

2.7 Study of Mobility - Since the study is primarily based on the use of mobility for educational purposes, a check was made of the many aspects of mobility and transportability which have a bearing on the design and use of mobile units in education. The advantages and disadvantages of mobile units and traveling units were investigated. The Principal Investigator concentrated on determining the inherent advantages of mobility with regard to its use in improving education in Appalachia.

2.8 Study of Educational Experiments - The study delved into the origin and use of mobile units. The mobile units which appeared to be part of an educational experiment were analysed. The characteristics of experimentation were also investigated with specific regard to the use of mobility.

2.9 Creating a Conceptual Plan of Operations - Based on the revelation that a single mobile unit can be used to improve educational opportunities in almost every form of art, science, mathematics, speech, language, and other types of academic, vocational and general education, the Principal Investigator decided that the most effective continuation of study would be the creation of a conceptual plan of operations. Such a series of concepts were developed to show the broad possibilities of using mobility to improve education in Appalachia.

2.10 Preparation of Findings - The study revealed many facts and many angles pertaining to the use of mobile or traveling educational units. The Principal Investigator made certain observations which are general because of the wide-scope of the investigation and lack of "in-depth" study. At the same time they assist the reader to understand the evolution of thinking which led up to the application of the systems development concept to the master planning of a supplemental education program using traveling and mobile units. Those observations and findings, which appeared to be more definite than others, have been listed in the form of conclusions.

2.11 Recommendations - The study permitted the Principal Investigator to take a broad look at the field of mobile and traveling units. As a result of the study, it is believed that mobility will play a very important role in improving the quality of education in the future.

Certain recommendations resulting from the study, were prepared and listed in accordance with a priority rating to be determined by the amount of funds which is available for further development of the system of supplemental mobile-type education units.

SECTION 3 - SUMMARY OF INVESTIGATION

The investigation of traveling educational units consisted of a literature search as well as a letter survey requesting information from 185 sources, such as: project directors, equipment manufacturers, local educators and State educators. The investigation revealed many important facts which are summarized as follows:

3.1 Broad Interest in Mobile Units — The literature search revealed fifty-seven references to articles and books published in the last 10 years on the subject of mobile or traveling units — their design, fabrication or use. This search has been annotated as shown in Appendix A.

3.2 Used Nationally — The survey revealed that mobile and traveling units were used in conjunction with projects in at least thirty-six states. It was discovered that at least seventy-seven projects were in process or had been completed and these projects involved some form of mobile units. The projects are listed in Appendix B and described if information was available.

3.3 Fleets of Mobile Units — It was also discovered that many of the projects involve several mobile units and that several projects involve the operation of fleets of mobile units.

3.4 Unlimited Functions of Mobile Units — It was also discovered that mobile units have been used to broaden and improve education in many different areas.

3.5 Academic Functions — A great many mobile units have been developed to further the basic academic types of education such as: reading, mathematics, speech, language and so on.

3.6 Teacher Training — Several state organizations have developed mobile units to provide expert teacher training using a method similar to that which was developed by the National Science Foundation to train science teachers.

3.7 Semi-educational Functions — Mobile units have been used for sales and display type of commercial exhibits, for cultural exhibits, for medical clinics and for other semi-educational purposes.

3.8 Mobile Unit Equipment — At least nineteen manufacturing firms are currently producing various types of traveling and mobile educational units. These firms are shown in Appendix C.

3.9 Bookmobiles — It was found that one of the most successful uses for mobile equipment is the bookmobile. Over three hundred bookmobiles are being used throughout the country. Their use has shown the potential use of mobile units as a means of broadening educational opportunities in rural areas.

3.10 Medical Mobile Units — Several state health departments and national governmental agencies are using different types of mobile coaches and trailers such as: mobile dental clinics, blood mobiles, mobile health clinics, mobile X-ray labs, mobile dispensaries, mobile hygiene units and so on.

3.11 Mobile Military Units -- The Army has been developing Mobile Armies which use Mobile hospitals, ambulances, dental clinics and other types of mobile units being developed by the Army Medical Corp. Signal Corps communications systems are being mobilized. Radar installations, electronic equipment, communications equipment, etc. are being designed into mobile units to make the field army more mobile. Other types of mobile units used by the military are mobile command posts, mobile photographic laboratories and so on.

3.12 History Mobiles — Many states have developed mobile units to carry "historical displays" to state fairs, schools and even national shows.

3.13 Museum Mobiles — Nine museums have developed mobile units which transport displays of museum objects for viewing within their regions.

3.14 Mobile Science Units -- Many groups and agencies have developed science teaching units because they lend themselves to carrying sophisticated science equipment which is not normally available in schools.

3.15 Mobile Art Galleries — Art mobiles and galleries-on-wheels have been developed to carry art to schools. In some cases the art exhibits are shown in the mobile unit; at other times it is set up in the school. All units are designed to carry original art and exhibits to enrich cultural activities within their communities.

3.16 Relocatable Classrooms — A variation to the housetrailer has been developed for extensive use in education as a relocatable or portable school classroom. It is not primarily a mobile unit, but has certain characteristics which permits it to be hauled from one location to another on an infrequent basis.

3.17 Mobile Display Units — Many industries and associations have developed mobile display units to introduce products or demonstrate services to their customers and the public.

3.18 Foreign Mobile Units — It is surprising to learn that Australia, Russia, England, France and other countries have experimented with the use of mobile units for educational purposes.

3.19 Educational Experiments — Almost all of the mobile units appear to be parts of experimental educational projects designed to improve the quality of education or expand the educational opportunities for the students. The experiments almost always follow the pattern "reinventing the wheel" because each mobile unit appears to have the same problems of design, fabrication, operation, maintenance, scheduling and so on.

3.20 Rural Uses — If there is one significant general observation to be made, it appears that the mobile units are more extensively used in rural areas than in densely-populated areas. This, of course, supports the belief that educational facilities which are spread out in rural areas cannot be outfitted as completely as schools in the urban areas. Therefore, sharing of facilities and teachers becomes an important characteristic of the mobile unit.

SECTION 4 - SUMMARY OF NEEDS

The needs for educational improvement in the Appalachia region are so obvious that the Principal Investigator did not spend too much time attempting to check into, spellout in detail and compile the list of educational needs. In brief, it was found that the Appalachia region needs every form of educational innovation which is now being planned for in other parts of the country, plus the more specific and basic needs of a region which has pockets of poverty in which the people are culturally-deprived and economically-disadvantaged. A brief listing of the needs and the situations which have caused these needs are described, as follows:

4.1 Small Schoolhouses - There are more one or two room schools in Appalachia than in any comparable area in the United States.	NEED 1: more modern educational facilities and equipment.
4.2 Below-average Educational Preparation - The youth of Appalachia do not measure up to the youth of the rest of the country as far as educational preparation is concerned; more Appalachia youths fail the selective service mental tests than the country's average and more students in Appalachia test below the national norms on achievement tests.	NEED 2: more educational preparation.
4.3 Fewer Curriculum Supervisors - Fewer schools in Appalachia have curriculum supervisors than in other schools across the country.	NEED 3: more and better curriculum supervision.
4.4 Fewer Guidance Counselors - The ratio of guidance counselors to students is very small.	NEED 4: more guidance counseling.
4.5 Less Opportunity for the Superior Student - Fewer schools in Appalachia offer advanced work for the superior student than in the rest of the country.	NEED 5: a system to select and stimulate superior students and then provide them with educational opportunities.

4.6 Educational Deprivation of Adults – The progressively-deteriorating situation as far as the educational-deprivation of the adults in Appalachia is acute.	NEED 6: any form of adult education.
4.7 Leadership Shortage – As a result of the restricted educational opportunity in Appalachia, there is a leadership shortage.	NEED 7: education of adults in community affairs, social responsibilities, democratic principles and civic leadership.
4.8 Fewer College-Educated Adults – Fewer adults in Appalachia have a college degree than in other parts of the country.	NEED 8: more inducements to develop or bring into the region more educated adults.
4.9 Less Financing for Schools – Although much of the region pays more of their income for the support of schools than the national average, the total financial backing for schools is less than other parts of the country.	NEED 9: additional financial backing for economically-disadvantaged areas and rural areas. NEED 10: solutions to provide more effective education for the students in the region within the school budgets.
4.10 Isolation of Spirit – A significant characteristic of Appalachia is its isolation of spirit which stems from generations of poverty and "mountain-ways".	NEED 11: educational programs to eliminate this spirit of isolation and the "mountain ways" philosophy of living.
4.11 Reluctance to Change – The reluctance to change is a characteristic of the region.	NEED 12: an educational program devoted to showing the student and adult population how to change.

4.12 Outward Flow of People -
The trend of population flow has been outward rather than inward. The population has been decreasing while the national trend is increasing. This has caused a reduction in the influx of new ideas and expectations.

NEED 13: new educational programs and new ideas for regional improvement.

4.13 School Policies Resist Change -
The legal structure of communities, counties and states and, at times, even the very policy and organizational structure of the school systems contribute to the inhibition to change.

NEED 14: educational programs to cause the adults and students within Appalachia to question the resistance to change.

4.14 Lack of Good Teachers -
The above situation has caused a lack of good schools and good teachers. Appalachia has many more teachers with sub-standard or inadequate preparation to practice their profession than in other regions of the country.

NEED 15: teacher education, teacher incentives and teacher recognition.

4.15 Lack of Human Resources -
Poor education is a tragedy at any time, but in Appalachia it appears to be a double tragedy because the region desperately lacks the human resources necessary to solve its economic and sociological problems.

NEED 16: human resources and educational guidance to develop an effective educational program for each community.

4.16 Pockets of Poverty -
Appalachia's characteristic landscape of the winding mountains and valleys creates "pockets of poverty", a maze in which whole communities are caught by their environment. The sight lines of people in these pockets of poverty do not extend beyond the surrounding mountain ridges.

NEED 17: every form of educational program which can assist in combating the feeling of isolation.

4.17 Ignorant of the Outside World - The people caught in these pockets seldom get a glimse of the outside world. If so, it happens only a few times in a lifetime.	NEED 18: means of transporting these people outside of their environment once in a while to broaden their horizons.
4.18 Outdated Value-Systems - The people in the culturally-deprived regions of Appalachia do not have the same value-systems which exist in the people in the more privileged regions of the country. As a result, the people do not have the same desire for education, the same interest in culture and the same curiousity for personal advantage. School is uninteresting to the students and what is more regretable, schooling as presently conceived, is irrelevant to their future.	NEED 19: realignment of educational programs to fit the Value-Systems of the specific areas, or NEED 20: educational programs to help change the Value-Systems of the people of these areas, by a slow methodical process of offering educational opportunities.
4.19 Lack of Stimulation - The environment of the region is characterized by dreary, dull routines even in the early years. Daily life certainly lacks stimulation. The student's school experience is probably characterized by frustration and failure which causes an attitude of dismay and results in a psychological dropout. Pushing some students in this region through the "educational pipeline" used in other more advanced regionsoften results in educational dropouts.	NEED 21: an acceptable custom-fitted educational pattern to fit the student to his probable future and to make good citizens, rather than scholars, out of those who are obviously not intended to become highly educated. NEED 22: educational programs designed to meet the needs of the different types of people in Appalachia.
4.20 A Different Type of Curriculum Development - The requirements for curriculum development differ in Appalachia than in other parts of the country. At present, it is difficult to develop a curriculum to meet the needs of the people especially because of the lack of curriculum supervisors.	NEED 23: new criteria for use in curriculum development; criteria which provides for career guidance and educational inspiration.

4.21 Limitations in Curriculum Building – Curriculum building is expensive and the financial resourses of communities in Appalachia do not permit an investment in curriculum building.

NEED 24: financial assistance in building curriculum for specific school districts.

NEED 25: curriculum modernization by outside services.

4.22 Appropriateness of Teacher Training – Teacher training programs which are designed to prepare teachers to teach students in other parts of the country are not adequate for the teacher who intends to teach in the poverty pockets of Appalachia.

NEED 26: programs to train teachers to teach under the conditions prevailing in the poverty pockets of Appalachia.

4.23 Dissemination of Teaching Aids – The dissemination activities of educational agencies do not provide information which is usuable by the teachers in Appalachia.

NEED 27: a program of dissemination of educational material and techniques which are better fitted to the needs of teachers of Appalachia.

4.24 Isolation of Schools – The lack of changes of environment causes the resistance to change in attitude and the lack of understanding causes the isolation of students.

NEED 28: extensive travel education programs and possibly student exchange programs to place students in new environments.

4.25 No Change of Teachers – The lack of changes of teachers and closeness of teachers in small schools causes the students to feel caught in the daily routine of a dreary, hopless situation.

NEED 29: new faces, new ideas and new environments acquired by a day's travel or a week's trip to an environment of greater interest.

4.26 Lack of Vocational Skills – For some time to come, the students and adults of the region will not be fitted with vocational skills and educational backgrounds. It is therefore a fact that the current worker and future worker will have difficulty competing with the great number of unskilled workers in Appalachia.

NEED 30: vocational orientation at an early stage.

NEED 31: cooperation of industry and education in training its labor supply for more mechanized and automated types of industries.

4.27 Chronic Youth Unemployment - High dropout rates and chronic youth unemployment in Appalachia are the responsibility of everyone.	NEED 32: career oriented programs, cooperatively developed by education, industry and political organizations, to fit the needs of the youth of the region for a self-satisfying and profitable life existence. NEED 33: educational programs to correct the problems of the dropout and the unemployed youth.
4.28 Regional Illiteracy - Literacy is a problem area. A prospective job applicant who can neither read nor write is virtually unemployable.	NEED 34: educational programs which will attempt to not only lessen the probability of adult illiteracy but personally attempt to aide each person to become literate. NEED 35: educational programs designed for citizenship training, life existence and democratic processes.
4.29 Lack of Career Guidance - Inadequate attempts are being made, throughout the country and Appalachia, in career guidance, the vocational education and semi-technical learning.	NEED 36: more effective educational programs in vocational orientation and guidance.
4.30 Retraining for New Careers - Attitude development is one of the major problems of Appalachia. Industry is pioneering in the retraining of employees; government agencies and labor unions are also instituting measures to reorient individuals to new careers.	NEED 37: educational retraining programs using techniques that have been experimented with, in other than the educational circles.
4.31 Unrecognized Talents - Assuming that there is latent talent in every student and adult, it is important in Appalachia — where such talent is needed -- to search for, identify and stimulate the use of such talent.	NEED 38: a systematic plan for locating talent in all of the students and adults of the region.

4.32 Lack of Hope -
Those families in Appalachia which have been caught in the web of hopeless are holding the region back. They are not only taking themselves out of circulation as far as society is concerned but also becoming a burden to society.

NEED 39: Educational programs to instill hope in the minds of the student and create educational aspirations within the student's family.

NEED 40: educational nourishment of the students native curiosity and his ability to explore, discover, and learn the principles of life existence.

4.33 Lack of Innovations and Educational Research -
Because the conditions within the schools and communities of Appalachia are not conducive to innovations in the school programs, relatively few efforts are being made to research in the types of education which is intended to meet the peculiarities of the region.

NEED 41: plans for the systematic development of an educational research program aimed at improving the school administration, the instructional programs and the teaching techniques within the region.

NEED 42: scientific educational research programs patterned after industrial research programs, which have established modes of scientific experimentation using the techniques of definition planning, establishment of goals, integration of multi-discipline approaches, establishment of the controlled experiment, field testing, evaluation procedures and so on.

This discussion and listing of the needs of the Appalachia region for "educational improvement" is probably not new to the educators of the region. However, the Principal Investigator considers it important to reiterate the needs of Appalachia and keep them in the forefront, in order that sufficient "steam can be developed" to create a big enough plan to do something about the needs of the region. The needs are tremendous. It is therefore important to stress at this time that "no little plans will satisfy a big need". The need for large scale planning and dynamic action is considered the over riding need of the region, if steps are to be taken to slow down and stop the rate of retrogression in the poverty pockets of Appalachia.

In other parts of the country, specific needs in education can probably be met by singular efforts to correct existing situations. In Appalachia, however, the educational needs of the region are so diverse and basic that a broad-based, regional approach to solving the needs of the region is considered the "number one need".

SECTION 5 - SUMMARY OF STUDY

5.1 Study of Mobility — The basic part of the investigation dwelled on the study of mobility as a means of improving education and expediting educational innovations within the schools of Appalachia. Since the Principal Investigator's experience has included the design of transportable field hospitals and conceptual planning, it is believed that concentration on the mobility aspect of education would be the most effective contribution to the Educators within the Appalachian Educational Laboratory. A discussion of this study of mobility is presented in Appendix D.

A summary of the study shows that many educational projects which involve the use of mobile units are in progress. Traveling and mobile units are primarily used at present to take teachers to students, students to learning situations, special educational equipment to the students, educational and instructional materials to students and so forth. This use of mobility makes it possible for schools to share facilities, teachers and equipment.

5.2 In-Classroom Teacher Training — The investigation revealed another use of mobility which excites the imagination. Mobile units, outfitted with excellent teaching equipment and manned by excellent teachers, are being used to provide actual demonstration-type of teacher training in the teacher's own classroom.

5.3 Career Guidance — Another important function of mobility was discovered. Mobility can make it possible to fulfill a great need in the orientation of students to careers and vocations. The long frustrating period of trial and error with regard to career selection can be greatly expedited by a cooperative effort by education and industry to offer career guidance, counseling and experimentation. It is believed that the majority of students in Appalachia can best be fitted for a profitable life and successful citizenship by early adaptation to careers of their choice.

5.4 Individual Mobile Units — It was discovered that the single mobile unit has no end of possibilities if it is fundamentally created as a part of the educational program. For example: the history mobile as a fundamental part of history teaching; the art mobile as a fundamental part of teaching the arts and crafts; the science mobile as a fundamental part of teaching science. It was revealed that the mobile units play an important role in the improvement of education within the school district or region which it serves. Each mobile unit advertises the desire by the teachers and administrators in the local school district to broaden the educational opportunities of their students.

5.5 School Bus Conversions — Another discovery or realization centered around the possibilities of the greater utilization of school buses. The conversion or redesign of school buses to include audio-visual equipment and easy-to-set-up functional, instructional equipment is believed to make it possible to develop a travel education system which is particularly suited to the needs of education in Appalachia.

5.6 Infinite Possibilities — The study revealed a tremendous number of ideas for the use of mobile units. The various uses of mobile units which could be adapted within the Appalachia region to broaden the educational opportunities for its students are shown in Appendix E. Rather than spell out in detail the characteristics of several units, the Principal Investigator decided that the study effort should (a) show the potential of a system of supplemental education made possible by mobile or traveling units, (b) suggest the types of mobile units which would comprise a regional fleet of mobile units and (c) conceive of a master plan operations, also showin in Appendix E "Conceptual Plan of Operations".

5.7 A Key to Education Innovation — The study of mobile units opened up new avenues of thinking about the improvement of education in Appalachia. One of the inherent characteristics of the traveling or mobile unit was found to be its ability to serve a broad region. But the most important revelation centered around the use of mobility as a means of expediting educational research as well as accelerating the dissemination of the innovations, from researcher to actual teacher.

5.8 Groups of Mobile Educational Units — During the process of thinking about the various types of traveling and mobile educational units, it was realized that the different types of units fit into certain groups according to function. One hundred types of mobile units were listed in the "Conceptual Plan of Operations" (see Appendix E), which is comprised of Twelve Sub-systems, as follows:

Sub-system 1 - Supplemental Academic Education
Sub-system 2 - Supplemental Vocational Education
Sub-system 3 - Field Projects Education
Sub-system 4 - Group Travel Education
Sub-system 5 - Planned "In-transit" Education
Sub-system 6 - Remedial Education
Sub-system 7 - Career Guidance
Sub-system 8 - Performing Arts Education
Sub-system 9 - Special Exhibits Education
Sub-system 10 - Physical Education
Sub-system 11 - Health Education
Sub-system 12 - Community Life Education

SECTION 6 - SUMMARY OF FINDINGS

Although the investigation of traveling and mobile educational units has not been made in-depth nor has the period of study been long, the Principal Investigator has acquired a broad general knowledge of the status of the mobile units in the United States. It is therefore considered important to relay the knowledge gained -- to the Directors of the Appalachia Educational Laboratory.

The findings are presented in the form of a list of observations and a list of conclusions. The observations should be considered as impressions which the Principal Investigator has acquired but has not had time to verify by discussions with others. The observations are, as follows:

Bulky Trailer Units	Observation 1 - Trailer Units appear to be heavy, bulky and difficult-to-haul by trucks on the highways. These units require truck drivers and legal permits to move them on the highways.
Easy-to-handle Coaches	Observation 2 - Transportation buses and special-purpose coaches, which have been developed for medical purposes, appear to be easy-to handle, comfortable and attractive. The larger units require bus drivers but the smaller units could be operated like station wagons by teacher-drivers.
Smaller Coach Units	Observation 3 - Lighter and smaller mobile units appear to be more attractive and more desireable for use in education. They are similar in many respects to the station wagons which have been used in the traveling science teacher programs.
Transportation of Students	Observation 4 - The most acceptable use for mobile units, at this stage of their development, centers around the use of vehicles to transport students, teachers, specialists and light instructional equipment.
People Movement Easiest	Observation 5 - The movement of people and light instructional equipment appears to be more feasible than the movement of heavy equipment and space facilities.
The Bookmobile Precedent	Observation 6 - The coach-type bookmobiles appear to be easy-to-handle and attractive. As such they are good example of the type of mobile educational unit which may be most successful in a future program.
Added Classroom Space	Observation 7 - The most advantageous way of providing additional classroom space is (a) by the addition of permanent classrooms or (b) by the use of relocatable classroom (house trailer type), not by the use of mobile educational units.

Change of Conditions

Observation 8 - The student's experience with learning in a mobile unit is effective and memorable, if only because of the change of environment, change of ideas and change of teacher.

Coordinated with Local Education

Observation 9 - Similar to units of TV education, the education dispensed in a mobile or traveling unit appears to be most effective if it is coordinated into one of the regular courses of instruction in the school.

Local Attitude Towards Mobility

Observation 10 - A key to the successful use of mobile educational units appears to hinge on the attitude of the local teacher and local school administrator.

Dedicated Teachers

Observation 11 - The successful development and use of mobile units depends upon the dedication of the teacher or researcher who spearheads the program involving the mobile unit.

Management Capability

Observation 12 - The management, supervision, scheduling, operation, maintenance and care of a mobile unit requires the capability of an experienced manager of a fleet of automobiles, trucks or buses.

Similar to Bus Fleet Management

Observation 13 - The problems of managing or contracting for school bus transportation are typical of those problems to be expected in managing a fleet of traveling or mobile educational units.

Teacher Reliance on Equipment

Observation 14 - The expert teacher or specialist desires to perform in the best learning environment, having at hand reliable demonstration equipment, instructional aids and educational materials - all of which can be assured if the traveling teacher is able to carry such equipment with him in a mobile unit.

Fleet Operations Success

Observation 15 - The fleets of mobile units appear to be more successful than individual mobile units probably because they have been more thoroughly planned and require more expert management of operations.

Advertisement of Educational Progressiveness

Observation 16 - One of the assets resulting from the development and operation of a mobile unit is that the unit becomes an excellent method of (a) advertising the innovation-in-education which it represents and (b) demonstrating the positive action being taken by the local school district to provide additional educational opportunities to its student population.

School Bus Conversions

Observation 17 – The numerous cases of projects involving the conversion of a school bus appear to indicate the adaptability of school transportation buses to the expanded uses of travel type education.

Although a lengthy study has not been made and certain factors have not been completely proven, the Principal Investigator has come to certain conclusions with regard to the use of mobile units to improve the educational opportunities for the Appalachia region. These conclusions are, as follows:

Sharing of Mobile Facilities

Conclusion 1 – A mobile unit, manned by a teacher and equipped with instructional equipment, makes it possible for many schools within a large region to share the teacher and facility thus spreading the educational opportunity over a large area.

Effective Spread of an Educational Opportunity

Conclusion 2 – If funds for making educational improvements and innovations are limited and the region is comprised of a great many rural school districts, one or more traveling educational units would be equally as effective a method as a TV communications network to spread the effect of an educational opportunity over the entire region.

Cooperative Venture

Conclusion 3 – The effectiveness of an educational program which uses a mobile unit depends upon the full cooperation between the local teacher, the local school administrator and the specialist teacher.

An Educational Research Methodology

Conclusion 4 – The design and development of a mobile unit is a form of educational research and innovation because it is dependent upon a systematic process of thinking necessary to (a) define the educational objective (b) develop a facility to make this objective possible and then (c) evaluate the effort. In this respect the design of a mobile unit may be considered a methodology for carrying out educational research and the operation of the mobile unit may be considered a methodology for disseminating the innovation to the local schools.

Expediting the Process of Innovation

Conclusion 5 – The design, development, staffing, equipping and operation of a mobile educational unit is similar to the design, development, staffing equipping and operation of a controlled experiment in educational research. In this respect, the traveling or mobile unit has the capability of setting up a quick experiment in education and taking it to different school districts for evaluation; thus, expediting the innovation process within the region.

Broad Evaluation of Innovations

Conclusions 6 - The offering of innovative educational programs by traveling teachers and mobile educational units makes it possible to evaluate the innovation by many different educators in many different districts.

A Combination of Educational Components

Conclusion 7 - In many cases the development of an improved method of education involves "a mix" or a combination of different types of educational facilities, equipment and techniques, such as: in-school facilities, the mobile facility, the local teacher, the specialist teacher, the TV network, communication technology, audio-visual equipment and the art of teaching.

A Piece of Equipment

Conclusion 8 - A mobile educational unit should not be considered a fixed, permanent facility or a monument to education such as; the school building. It should be considered a piece of equipment and part of a system and as such, it has to be operated effectively in the same manner as a TV network.

SECTION 7 - RECOMMENDATIONS

A series of recommendations are made to give the Directors of the Appalachia Educational Laboratory the benefit of the Principal Investigator's study. These recommendations are based on two important hypotheses. The first hypothesis is that mobile educational units should provide the greatest benefit to the greatest number of perople within the region. The second hypothesis is that the development of a system involving mobile educational units can be financied to any degree which the Laboratory deems desireable. Both hypotheses will be further amplified after the presentation of the recommendations as follows:

Regional System	Recommendation 1 — It is recommended that the Laboratory create a regional system of supplemental educational programs which can be effectively presented to students through the use of traveling educational units.
Mobile Units and TV Network	Recommendation 2 — It is recommended that the system of supplemental educational programs be integrated with the existing programs involving the use of educational TV networks.
Educational Research Centers	Recommendation 3 — It is recommended that a regional system of educational research centers be developed to create the educational programs and the mobile units to serve the programs.
Cooperative Development	Recommendation 4 — It is recommended that the programs of supplemental education be developed with the cooperation of teachers and administrators in the local school districts.
Branch Operations Offices	Recommendation 5 — It is recommended that a regional system of branch offices be established to manage, schedule, operate and maintain a fleet of mobile educational units which are used to offer supplemental educational programs to the local school districts of the Appalachia Region.
Regional Evaluation Program	Recommendation 6 — It is recommended that a "Regional Evaluation Program" be developed by the Laboratory to determine the observable improvement in education of the supplemental educational program which uses mobile units.
Continuation of Study	Recommendation 7 — It is recommended that the Principal Investigator be given sufficient funding to continue the study of developing this regional program for supplemental education which is based on the use of mobile units.

The seven above-noted recommendations call for the adoption of (a) a master plan for regional educational innovations and (b) a system of supplemental educational programs made possible by the use of mobile or traveling educational units.

As stated above, the first hypothesis is the basis for a broad-based development program which insures that the mobile educational units will provide "the greatest benefit to the greatest number of people within the region". In this respect, mobile educational units will be designed to (a) offer new types of supplemental education benefiting the local school's educational program and (b) dispense these programs to probably two hundred schools in a year's time.

Based on the second hypothesis stated above, a system of traveling educational units could be developed and put into operation "at any speed" deemed desireable by the Laboratory and in accordance with the amount of funding which is made available by the industry, by government agencies, by state organizations and by other groups who are interested in promoting educational opportunities in Appalachia.

A realistic approach to the development of a system of traveling or mobile educational units is suggested in the eight step plan described hereinafter:

Conversion of Buses

Step 1 — If a small amount of money is available, it is suggested that a program be initiated to convert school buses to multi-uses and additional uses for the travel education of the students.

Replacement with Educational Coaches

Step 2 — If more money is available, it is suggested that existing outdated school buses be replaced with educational coach units which are especially designed for additional uses in travel education and mobile education. For instance, two or three school buses could be purchased by a local school district and developed under an experiment whereby the extra cost for the traveling units and their design would be financied separately.

Mobile Unit Design Services

Step 3 — If more money is available, it is suggested that the Laboratory provide a "region-wide service" offering services of Consulting Engineers and Educators, to work with local districts and state organizations who are presently developing and operating mobile units. This would insure the development of the most effective type of mobile education. The cost of such would be borne by the Laboratory which would benefit from the experience and the publicity gained by having more successful experiments.

Scheduling Existing Mobile Units

Step 4 — If more money is available, it is proposed to establish an experimental operating office which would organize an "educational calendar" showing the availability of the existing mobile educational units which are now available to school districts, such as: the Franklin Institute Mobiles, the NASA Mobiles Units, the National Science Foundation Units, the State History mobiles and the museum mobiles. The office would also schedule the units.

Develop Mobile Educational Programs

Step 5 — If more money is available, it is proposed that a research program be initiated at a major university (or universities) to develop units of supplemental education programs and the mobile facilities necessary to offer the programs to the entire region.

Sub-systems Development

Step 6 — If more money is available, it is proposed that a coordinated R. & D. program be initiated to systematically develop several of the supplemental educational programs which are suggested in several of the twelve sub-system areas mentioned in the Conceptual Plan of Operations.

Career Guidance

Step 7 — In view of the desperate need for career guidance and vocational training in the Appalachia region, it is proposed that various industries be solicited to assist in the development of mobile units which are of interest to them because they assist the industry to procure and train personnel in certain vocations and careers.

Field Projects Mobile Units

Step 8 — If more money is available, it is proposed to concentrate on the development of a system of "field projects education" which will take students out of their classroom environment and into the field to study new fields of interests as described in sub-system number three of the Conceptural Plan of Operations.

The Above-mentioned recommendations and the suggested steps toward realization of a system of traveling educational units are, of course, dependent upon further planning and study of the educational needs of specific groups of schools in the educationally-deprived areas of Appalachia.

C. Herbert Wheeler, Jr.
Principal Investigator

1/6/67

Appendix A
Traveling Educational Units
Feasibility Study, 12/30/66

An Annotated Bibliography

of

Traveling Educational Units

A review was made of the Education Index for the past ten years. A partial review was made of the Engineering Index. Additional references were exposed during the search for manufacturers and the users of mobile or traveling units.

The investigation revealed a total of 57 references which have been read and annotated.

It is believed that a more thorough survey would reveal twice as many references because of the many projects which have been discovered after the literature search was made in August and September, 1966.

1. Bezou, Right Rev. Monsignor Henry C. "Mobile Classrooms for a Mobile Population," Catholic Building and Maintenance, (1965).

   "Mobility is a distinct American characteristic," and "we have been a people on the move. The trailer itself is a symbol of the nation's mobility. It is a common sight on the super highway and the by-way." The article describes the experience in New Orleans where 25 mobile classrooms are adjoining 12 schools and the advantages of the mobile classroom.

2. Billings, A. G. "Touring the Educational Theatre," Educational Theatre Journal, 16, (Oct. 1964), 242-8.

   Describes the "growing up" of academic theatre including touring theatre which "gives to the student invaluable experience." The fabrication of transportable sets and props and truck loading arrangements are described. Baggage Master functions, itinerary planning, and scheduling are also discussed.

3. "Bookmobile Services," Bulletin of the American Library Association, 53, (April 1957), 14.

   A statement of policy on school and library relationships in North Carolina State Department of Public Instruction.

4. "Books, U.S.A.," School Life, 42, (Dec. 1959), 12-13.

   A pictorial article showing expanded use of bookmobiles which are "making themselves well felt in the rural areas of 52 states and territories." The Library Services Act has brought public services to 1 million persons and 65 counties which previously did not have library services. Two hundred more bookmobiles are now plying the country roads as a result of L. S. A. funds.

5. Bowles, J. E., et al. "The Traveling Science Teacher Lecture-Demonstration Program," Science Education, 46, (Oct. 1962), 390-2.

   Describes the history, objectives, operation and evaluation of the above-mentioned program initiated in 1956 by the Oak Ridge Institute of Nuclear Studies at Oak Ridge.

6. Cairy, C. F. "Heart and Nerve Dynamics in the Traveling Science Teacher Program," American Biology Teacher, 24, (March 1962), 167-76.

Describes the development of lecture-demonstration equipment which was transported in a station wagon and which could not be bulky or unweildy. This equipment was developed as a part of the 1959 and 1960 Summer Traveling Science Teacher Program at Michigan State University. It was used for training in the area of physiology.

7. Carmel, James H. Exhibition Techniques, Traveling and Temporary, Reinhold Publishing Corp., 1962.

A chapter of this book describes the transportation of traveling exhibits. "The museumobile" has been a going institution for 30 years or more. State museums in Illinois, Nevada, Florida, and Virginia operate mobile units as regular service to outlying areas, and these vary from self-propelled units to remodeled trailers. The National Museum of Warsaw, Poland has perhaps the most elaborate such "museobus" consisting of a trailer with 32 1/2 by 7 feet of floor space, sleeping quarters for staff, sound equipment and other devices. A Swiss chemical firm uses a French system of five expandable trailers called "Deplirex." The characteristic of the operating procedure, staff, equipment, and so on is described. Generous photographs show trailer units, tent-joined wheeled units, panel-type storage units, telescoping trailer units and even converted barges designed for tying up at river fronts and showing traveling exhibits and providing auditoria for educational presentations.

8. Davenport, Barbara. "Books on the Mountain," American Education, No. 3, (March 1965) 12-15.

Regional library system for Avery, Mitchell and Yancey Counties in the mountains of North Carolina offers more than books to its users. The library system now has 33,000 volumes and a special collection which it brags about on minerals which has grown out of the rich deposits in the mountain soil. The bookmobile has shown many in the counties it serves the outside world,and its librarian says that "we have not been so much isolated from the people outside our region as they have been isolated from us."

9. Dressler, F. J. "International Relations Study Booms as a Result of Buffalo's Traveling Exhibits," New York State Education, 49, (April 1962), 38.

Describes a traveling exhibit of international relations materials assembled by a Committee of the Buffalo Public Schools. The exhibit shown in 25 schools developed new enthusiasm for teaching world understanding and the life and culture of foreign lands to elementary and secondary grades.

10. Elliott, Carter. "Video Tape Aids ETV," Modern Schools, (November 1964), 9-10.

Article points out that "Educators were quick to see advantages of television recording for instructional broadcasting and closed-circuit programs." When television tape recording was introduced in 1956, it revolutionized broadcasting methods. At the University of Missouri, a portable broadcast type recorder is moved about the campus in a specially-fitted mobile unit. It is used for taping lectures and special presentations on and off campus. Michigan State acquired two portable recorders. Portable television recorders record programs which can be stored or they can be broadcast and taped simultaneously.

11. Estabrooks, Edith E. "How Not to Give Bookmobile Service to Schools," Bulletin of the American Library Association, 53, (Feb. 1959), 129-30.

Describes the bookmobile service of the Tri-County Library Service Center at Bridgeton, N. J. Article tells of the denial of bookmobile service.

12. "First Film Library on Wheels: Coronet Mobile Educational Film Library," Modern Language Journal, 50, (Feb. 1966), 106-7.

News article describes a self-sufficient film library which has heating and cooling systems to protect film. The 16 foot long custom built van has a complete booking system and film can be previewed in the unit. It is expected that the unit will visit each school in a district once a week and loan films. It will make foreign language films more readily available to smaller or isolated schools.

13. Gard, R. E. "Theatre Arts in Adult Program Planning: Touring Show at Wisconsin County Fairs," Adult Leadership, 13, (Nov. 1964), 134-6.

Describes the development and first application of a traveling theatre unit which has a sound system and brings a "new sense of culture to Wisconsin rural folk.".

14. Geraty, M. H. "Museums-on-Wheels," Education, 83, (Nov. 1962), 179-81.

The Junior Museum Guild of Sacramento, California initiated a $5,000 all-community project which resulted in a "mobile museum," expandable type panel truck. As a moving advertisement for the museum, it serves to focus attention on the museum. Last year the museum served 1 5,000 persons of whom 26,000 were school children and brought animals in cages to the observers. It is pointed out that traveling units can bring science exhibits, planetarium shows, and museum facilities to children. The vital part of the mobile program is the driver-lecturer-demonstrator who should be a showman, enjoy children, and be versed in the sciences. Fees are set for each mobile show and a charge is made for mileage.

15. Gevorkian, R. G. "Traveling Laboratory," Soviet Education, 4, (Aug. 1962), 24-6.

In 1959, two laboratory trains were set up to bring classes closer to students. At the present time (1962) four traveling laboratories for physics, electrical engineering, electric rolling stocks, and SIC (signalling, block operations and communications) are operated by the USSR Correspondence College of Railway Engineering.

A passenger car is converted to have 10 laboratory tables and instructor's table. Eighteen students attend lectures at one time. Called study-consultation centers, they follow the students' preparatory reading work. The traveling laboratory provides as many student-hours per year as the physics laboratory of an average engineering college, with 300-400 students in each year of study.

The author believes that "traveling laboratories can play a major role in the development of correspondence schooling in other fields as well." A small fleet of traveling educational laboratories are proposed.

16. Guidelines: Grants for Planning and Establishing Supplementary Educational Centers and Services, ESEA, Title III. U. S. Department of Health, Education and Welfare, Office of Education, Washington, D. C., (Oct. 1965).

Booklet states that "it is intended to stimulate local communities to transfer beneficial research results from the educational laboratories to the classroom." During the first year highest priority would be given to planning grants and low priority would be given to purchase of equipment or construction of facilities. The Advisory Committee feels that "Title III (ESEA) should not be as concerned with filling the need for services and centers as it should be with creating an awareness of the need for new and imaginative programs and services."

17. Hughes, B. R. "How to Have a Mobile Speech Lab," School Management, 7, (March 1963), 96-7.

A speech correctionist in Arkansas remodeled an ordinary bus into a mobile speech correction department. The problem of space, transportation and time were solved by the mobile unit which carries delicate therapy equipment including work tables, recorders, phonographs, teacher's desk, to the various schools of the district.

18. Hughes, M. V. "Demonstrating Bookmobile Service," Wilson Library Bulletin, 33, (May 1959), 663-6.

Describes the procurement and operation of a bookmobile in Butte County, northern California. The operation included a full scope of library services and activities such as: the record player and record collection and the film collection and projector-for-loan. Experiments were made in summer reading program and language records. The public relations program included participation in parades, upswing in music store business, amateur photography and so on.

19. Huttenhauer, H. G. "Wonderful Wheels: Maryland," NEA Journal, 46, (Oct. 1957), 4

A short article describing the history of bookmobiles in Maryland starting in 1907. Since the 1940's bookmobiles have revived, and last year (1956) 19 bookmobiles circulated 1,400,000 books at more that 1,000 stops. Small trucks carrying 2000 books cost $3000 and large trucks carrying 3000 books cost about $12,000. The nerve center of the bookmobile enterprise is the Division of Library Extension in Baltimore, which is under the control of the State Board of Education.

20. Hyatt, Hannah. "A Unique Use of the Bookmobile," Wilson Library Bulletin, 32, (April 1958), 570-1.

A bookmobile offers a new service--namely "projected-from-inside films to children at summer parks. The rear of the bookmobile was outfitted with a shaded screen, making it possible for children of all ages to lie on the grass under the trees and see amusing travel and educational films, i. e., "How to Make Papier-Mache Animals." The bookmobile was moved every hour to another park and the library function was coordinated with the summer recreation function. Films were announced ahead of time and the library could function during film showings.

21. Johnson, J. L. "Mobile Science Classroom," The Science Teacher, 30, (March 1963), 21-2.

Describes how a sixty passenger school bus was improvised to make a mobile science laboratory. A plywood counter was attached to the seat backs, forming a counter for microscopes, test tubes and racks, dissecting pan and kit, specimen collecting jars, thermometer, insect mounts, binocular and reference books. The unit served as mobile science classroom to study elementary lake ecology. The instructor obtained a bus driver's license and carried out a five-phase program: (1) mapping of physical features of lake, (2) study of microscopic plants and animals found in the lake, (3) study of lake's insects, (4) study of the lake's fish, and (5) study of conservation of wildlife and fishing regulations.

22. Katz, Herbert and Marjorie. Museums U.S.A. Doubleday & Co., Inc., New York, 1965.

The book describes the background and history of museums in the U.S.A. and includes a chapter on the infinite variety of art, science, history, corporate, sailing, industrial and other areas. A list of the museums in the Appendix shows the location of mobile or extension type services.

23. Kimak, G. "Museum on Wheels," New York State Education, 50, (June 1963), 18-19.

An article suggesting the development of mobile educational display units to use the vast storehouse of the visual educational materials from art, history and science museums as well as from industries. The potential for mobile educational units is unlimited--science-mobiles, art-mobiles, history-mobiles, speech correction-mobiles, psychiatric clinic mobiles, and hygiene-mobiles. Tomorrow, helicopters may discharge mobile educational units in school yards, but today, museums-on-wheels are feasible (drawing included).

24. "Language Laboratories on the Move," London Times Educational Supplement, 2253: 1081 (April 24, 1964).

A newspaper article describes the adaptations of a double-decker bus by the National Extension College as a mobile language laboratory. The bus will be sited outside schools by day and evening institutes by night. Audio-visual language classes will be held costing 7 pounds per day. The bus will visit Cottenham one day per week to start. The bus interior is a technological fairyland. The lower deck is a normal classroom equipped with projector and screen. Upstairs the teacher conducts classes of 10 at individual tape recorders.

25. Lewis, Philip. "ETV: How to Put Together a Communications System," Nation's Schools, 76-4, (Oct. 1965), 49-57.

Pictures a "mobile television studio used by students and staff of public schools of Darien, Connecticut, to prepare a library of filmed and taped educational programs for showing this fall. Library was collected this summer."

26. Lighting the Spark of Science in More Young Minds. Expeditions in Science, A Report by the Franklin Institute, Philadelphia, (undated--1965 or 1966).

The Institute's mobile "Expeditions in Science" program has been seen by nearly 50,000 school students since December 1964. This program is a revival of the Institute's mobile chemistry show which plied the highways from 1937 to 1941. As a result of the Institute's conception and operation of a portable space science demonstration developed for NASA, there are 30 NASA "Space Mobiles" traveling here and abroad telling the exciting story of man's ventures into the heavens.

Similar reference: the Institute's "School Program of February - June 1966."

27. Linder, Forrest E. "The Health of the American People," Scientific American, 214, (June 1966), 21-29.

Describes Health Examination Survey conducted by the Public Health Service in mobile Health Centers. The centers, staffed by a trained team of medical specialists, nurses and technicians, moves about the country in caravans of four large trailers that together provide facilities for a complete three-and-a-half hour medical examination and for laboratory procedures.

28. Maben, J. W. "Traveling High School Biology Demonstrations," American Biology Teacher, 24, (Dec. 1962), 590-2.

Describes the development of the Traveling Science Teacher Program as a service to secondary schools to stress lecture-demonstration techniques that enhance students' first-hand experience with scientific phenomena. Demonstrations were given in biology, chemistry, mathematics, and physics during one-week stays in a school system. Biology offered unique challenges, and traveling teachers journey with their equipment in station wagons to approximately 1,000 mid-west schools.

29. McGinnis, P. "Putting History on the Road: Historymobile of the State Historical Society of Wisconsin," Wisconsin Journal of Education, 91, (April 1959), 11-12.

Describes a Historymobile developed and operated by the State Historical Society of Wisconsin. Since 1955, over a half million have seen the Historymobile, which has remained on the road through the support of history-minded firms and individuals. The unit attempts to visit every county during its season, and it has rolled up an attendance of 690,838 children and adults since it started. During the same period the museum headquarters has tallied 175,989 visitors. During school sessions--April through June and September through November--the unit cooperates with school programs.

30. "Mobile Library School, North Carolina," Wilson Library Bulletin, 36, (June 1962), 794.

A news article describing the mobile van which was adapted with shelving, books, and teaching materials for use in North Carolina's Quality Education Program.

31. "Mobile Technical Colleges," International Bureau of Education Bulletin, 36, (3rd Quarter 1962), 135.

Describes the operation since 1938 of four mobile technical instructional units consisting of three railway carriages each. One to accommodate the officer-in-charge, one as a lecture and demonstration unit and the third a workshop. All four units have been used in the field of mechanical and automotive engineering, but in 1961 one unit was transformed to give instruction in the electrical trades. The units operate on a circuit of three centers and stay for one or two weeks in a center. The success of the experiment is attested by the fact that several permanent technical colleges have been erected in towns formerly served by the mobile units.

32. "New Approach to the School-on-Wheels", American School and University, 38, (April 1966), 36.

Describes the program in Cumberland, Rhode Island and the procurement of a 40 by 10 foot trailer laboratory unit designed as a remedial reading laboratory with the latest teaching equipment and carpeted floors. The unit will travel from school to school bringing the classroom to the students. It will accommodate 21 students for each lesson and will be pulled from one location to another by a truck.

33. Pacesetters in Innovation, U.S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C. (Feb. 1966).

Description of first projects approved, Title III Elementary and Secondary Education Act of 1965, Supplementary Centers and Services Program. The booklet describes 217 projects of which 11 include mobile units in some form for the transport of educational equipment from district centers to isolated schools.

34. Pacesetters in Innovation II, U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C. (April 1966).

Projects approved, second period fiscal year 1966, Title III Supplementary Centers and Service Program, Elementary and Secondary Education Act of 1965. The booklet describes 336 projects approved to plan or operate supplementary centers or services. Seventeen of these projects include mobile units in their plans.

35. Phillips, Harry L. "A New Dimension," American Education, 2, No. 4, (April 1966), 15-20.

Describes progress under Title III of ESEA of 1965 and shows the broad scope of planning projects. Three projects involving mobility are described as follows: (1) mobile counseling service with a mobile van touring 17 schools in Indiana, (2) a Roving Reader in Kennebunk, Maine designed to bring remedial reading assistance to schools of the district which do not have such facilities, and (3) the adaptation of school buses to investigate the possibility of carrying instruction to the student as he travels in school buses to and from home.

36. Projects to Advance Creativity in Education, Title III, Department of Public Instruction, Commonwealth of Pennsylvania, Harrisburg, (1965).

This booklet states (a) the purpose of Title III, (b) the five important emphases, and (c) offers a list of typical projects. Of the 37 types of projects described, the following 16 projects involve (or could involve) mobile units or a form of mobility:

1. Regional Cultural Enrichment Centers
2. Regional Instructional Materials Centers
3. Diagnostic and Consultation Centers
4. Computer Demonstration Center
5. Audio-Visual and Electronic Planning Service
6. Planetarium-Auditorium Education Center
7. Outdoor Education Center
8. Mobile Demonstration Center
9. Audio-Visual Production Facility
10. Historymobile.
11. Regional Reading Center
12. Mobile Cultural Units
13. Mathematics Laboratories
14. Schools on Wheels
15. Student Workshops in Science
16. Traveling Science Lecture-Demonstration.

37. "Public Library Bookmobile Service to Schools," Bulletin of the American Library Association, 52.

A series of statements by school librarians on bookmobiles--on the disadvantages and advantages of bookmobiles.

38. "Roving Remedial Reading," The Instructor, 73, (Sept. 1963), 148.

Describes the remodeling of a school bus for the Santa Maria School District into a mobile classroom for remedial reading. The unit has served about 40 boys and girls per year. After two years the school board authorized the remodeling of two more buses--one for a second remedial reading unit and the other as a speech therapy unit.

39. Setting a New Pace Through PACE, U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C. (1966).

Booklet describes the types of projects which could be supported such as "mobile libraries, mobile science laboratories," and so on. Hypothetical examples of typical projects are listed, such as:

"Mobile Units with displays of various arts and crafts could visit schools with a master teacher to give demonstrations. Such a program would not only suggest new ideas to classroom teachers but also motivate their pupils to new forms of self-expression and creativity.

"Mobile planetariums (possibly inflatable), zoos, aquariums, as well as geological exhibits and other displays of natural phenomena might be developed for scheduled visits to area schools.

40. Shawkey, D. R. "Reaching Out: Bookmobile Service in Brooklyn," Bulletin of the American Library Association, 51, (Sept. 1957), 612-18.

Describes the mobility, popularity, and economy of bookmobiles in urban areas. The LW--"Libraries on Wheels"--are described with regard to scheduling, operations, staffing, etc.

41. Smiley, Wendell W. "Classrooms That Move: A New Trend?" Bulletin of the American Library Association, 56, (April 1962), 328.

Describes the offering of library science courses from a specially-equipped bookmobile by the East Carolina College. A Library Laboratory, a 40 foot classroom on wheels seating 18 persons, was developed by the Southern Illinois Regional Library at Carbondale to offer inservice training for librarians.

42. State Plans Under the Library Services Act, Supplement 3, OE-15012-61, U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C. , (1963).

Booklet states that "A bookmobile rolling down a country road, bringing public library books to children and adults for the first time, has an undeniable emotional appeal." It describes and pictures the use of bookmobiles in extending library services to "Thirty-six million rural people (who) now have either new or improved library services available to them." "About 300 bookmobiles purchased under the program are helping to make library collections more conveniently available."

43. Stevenson, M. "Bookmobile Lady," Wilson Library Bulletin, 31, (May 1957), 723.

Describes how the Alton, Illinois school district borrowed a bookmobile for two years, subsequently buying two bookmobiles. Circulation of books increased from 5,000 to 50,000 in fourteen schools and 2,500 children. During this period the school district has consolidated eight one- and two-room schools but everyone appears to look for and depend upon the "Bookmobile Lady."

44. Stewart, J. E. "Annual Report: Bookmobile II," Wilson Library Bulletin, 32, (April 1958), 517.

A narrative type report showing the service which the bookmobile renders its juvenile, school age, and adult users in Baltimore, Maryland.

45. "Stinking Creek, Kentucky," Rural Opportunities, 1-3, (July 1966), 7.

A photograph and description of the Mobile Health Clinic built especially for the Knox County Economic Opportunity Council. The new clinic, which is being used for screening, examination and for health education, carries its own water supply, has its own generator and refrigerator, and is completely air conditioned. The clinic makes "the rounds of 12 community centers in Knox County so that families in out-of-the-way areas can benefit from the service." The clinic serves a "population of 25,000 people which has one doctor per every 5,000 persons, one dentist per every 8,000 persons, and where 80% of the children suffer from worms."

46. Stocker, Joseph. "Books for the Grassroots," Arizona Teacher, 49, No. 4, (March 1961), 10-11.

Describes five years of development of Arizona's Library Extension Service, whose staff is now 14, and its book collection has increased from 8,000 to 75,000. Two bookmobiles were purchased- -one to travel north and one to go to the south of Phoenix. One passerby was startled to see a bookmobile parked at the jail and a prisoner signing out a book. As a result of great interest in books the number of rural libraries has grown from 30 to 141.

47. Strouse, D. "The Administrator Looks at Bookmobile Service," Bulletin of the American Library Association, 52, (Jan. 1958), 16-22.

Describes the pros and cons of traveling libraries and states that the challenge of bookmobile service should catch the imagination of more young librarians, for it provides basic training for future advancement.

48. Summary Report, 1965-66, ESEA 1965 Title III, Bulletin 5, Department of Public Instruction, Commonwealth of Pennsylvania, Harrisburg, (1966).

This summary outlines the procedures and results achieved through the cooperative efforts of local educational agencies, regional committees, the Department of Public Instruction, and the U. S. Office of Education. Two of the 39 funded programs described herein involve mobile equipment.

49. Summary Report (Draft) of Selected Title I Projects Funded Under the Elementary and Secondary Education Act of 1965, U. S. Department of Health, Education, and Welfare, Office of Education, Washington, D. C., (Sept. 1966).

The collection of project descriptions includes about 75 projects of which 14 involve a mobile educational unit or some variation of traveling education.

50. "Teaching Machine Tour," Higher Education, 19, (Oct. 1962), 19.

The first traveling exhibit concerning programmed instruction and teaching machines was opened in Washington, D. C. The demonstration-exhibit is under the auspices of the Educational Media Branch of the Office of Education and is scheduled to be shown in many large cities.

51. "Title I, ESEA, A Schoolman's Guide to Federal Aid, Part III," School Management, (1966).

An interview with U. S. Commissioner of Education Harold Howe II on progress, problems, project evaluation, and other matters pertaining to "Where do we stand?" He also discusses "Where are we headed?" and "How to develop better programs for the disadvantaged students."

In Rochester, New York mobile art galleries, remedial reading laboratories, audio-visual arsenals, libraries, and health centers are being used to make desperately needed services available to schools in disadvantaged areas on a regular basis.

52. Townsend, Silas. "Bookmobile Exhibit Project," Wilson Library Bulletin, 33, (May 1959), 667-9.

Describes the tours of a bookmobile in four counties of Southern Adirondack area and pointing out the benefits of the bookmobile to the individuals as well as communities which are somewhat isolated.

53. "What Schools are Doing, Fontana, California--How to Turn One Teacher into 36 with a TV Recorder," Nation's Schools, (Dec. 1964), 29-30.

Describes how one teacher gives science instruction to 1,000 sixth graders in 36 classrooms scattered over 31 miles. With two portable magnetic TV recorders--one installed in a studio and the other as a mobile recording unit--the lessons are prepared and perfected in the studio before they are telecast. The mobile unit includes the recorder, two mobile cameras, microphones, audio-mixer, one-kilowatt gasoline generator and so on. While the mobile recorder is primarily for sixth grade science instruction, it has been used to tape subjects of interest for music and civics classes.

54. "Why Public Library Bookmobiles Serve Schools," Bulletin of the American Library Association, 52, (April 1958), 267-9.

Provides statements by bookmobile librarians on the working philosophy of bookmobiles.

55. Wood, D. E. "Starting from Scratch," Bulletin of the American Library Association, 51, (June 1957), 419-24.

Describes the bookmobile services of the Clermont County Public Library of Batavia, Ohio, which has just ordered a second bookmobile, larger than the first, for school service.

Added later:

56. Ahlander, Leslie J. "Galleries-on-Wheels," Virginia Museum of Fine Arts, (1964).

Two traveling units operated by the Museum "bring art to regional centers which otherwise would have no opportunity to see original works of high caliber." Artmobile I, a truck and trailer 34 feet long with the cab adding another 10 feet. When it is parked, the specially designed gallery opens out to cover an area 51 feet long and 22 feet wide. Flaps are raised to reveal information panels on the sides of the trailer. For nine years Artmobile I has served even the smallest communities in remote and rural areas of the State.

Artmobile II, the world's largest display vehicle, was inaugurated in 1962. Even when closed, it is 54 feet long with cab and over 10 feet wide. It needs a special permit and a police escort to travel Virginia's roads. It is entirely automated and its canopies, reception desk, information panels, lights, and so forth can e set up in less than 20 minutes by the driver alone, simply by pushing buttons which activate hidden electric motors. (See also reference .)

57. "The Artmobiles," Virginia Museum, 27-1, (Sept. 1966), 3.

Four of the Museum's huge "galleries-on-wheels" will carry a total of seven exhibitions of original art to Virginians this season. Artmobiles III and IV will be making their inaugural runs. The exhibitions, being carried by Artmobile I to small communities beyond the reach of the larger vehicles which require special clearance, are "Art from China," "American Indian Art," and so on. The larger exhibitions, such as "Art from the Ancient World," will be carried by Artmobile IV to 16 college communities. (See also reference .)

Appendix B
Traveling Educational Units
Feasibility Study, 12/30/66

Description of Educational Projects
Involving
Traveling Educational Units

An investigation was made to discover the location, characteristics and use of various types of traveling educational units.

Personal contacts with nearby educators revealed the probable sources of data on educational projects which involve traveling or mobile units.

Literature providing lists of innovative educational projects were secured from state and national government agencies.

Personal letters, enclosing a "brief prospectus" of this investigation were sent to 48 State Superintendents of Education, 51 project directors and various non-educational groups, such as: Highway associations, Museum Associations, automotive equipment associations, government agencies and so on. As a result of this survey, personal replies included lists of mobile projects, references to other sources of information, actual proposals and descriptions of mobile unit projects and various items of advertising or publicity describing mobile unit projects.

Seventy-seven projects were discovered and they are listed herein. If a description of the project was available, it was added to the list of projects which follows.

Based on the recently acquired data and the leads which were not followed up, as yet, it is believed that about 75 more contemporary or proposed projects exist.

1. PHOENIX, ARIZONA

Arizona Department of Public Instruction

Title III Planning Project, OE No. 66-669 $12,323.

MOBILE INSTRUCTIONAL LABORATORIES

Two types of mobile units are being procured for use in a State-wide Adult Basic Education program. The longer unit is approximately 30 ft. long and 8 ft. wide and will seat 18 students in carrel-type desks running the length of each wall. The desk positions will be wired to an audio-active language lab console located near the front of the vehicle. Over-head projector, controlled reader, language master, controlled image projector, tape recorder and other items of audio-visual equipment will be used by a teacher and several technician aides assigned to the unit. The second unit is a smaller 4 wheel drive vehicle which can transport equipment and teacher over rough roads like "a submarine operates from a submarine tender." The language lab is vital because "Arizona has a tremendous second language problem with students in the adult literacy program. In addition to Spanish, there are 13 indigenous Indian languages." (Personal correspondence with Mr. Ralph R. Eckoff, Television Coordinator and Terrence Walton, Administrative Assistant, State Department of Public Instruction.)

2. TUCSON, ARIZONA

Arizona-Sonora Desert Museum

THE DESERT ARK, A MUSEUM MOBILE

3. CROSSETT, ARKANSAS

Crossett School District

MOBILE SPEECH CORRECTION LABORATORY

A 48-passenger school bus with seats removed, was fitted with a formica-topped work bench along one side for six children and space for a teacher's desk and file cabinet. Storage bins and electrical outlets were provided on the opposite side for tape recorders, record players, etc. According to the project director "the mobile speech unit worked, and after three years of use I don't know anything that could have materially improved our situation" ...."With approximately 10% of our school population in need of speech correction, I feel that the mobile speech unit should be looked into by districts which cannot afford a correctionist for each school - and few can". (Personal correspondence with Mr. Wm. R. Hughes, Project Director)

4. LITTLE ROCK, ARKANSAS

Arkansas Arts Center

ARTMOBILE

A trailer type "art-gallery-on-wheels" is hauled by a tractor by a curator-driver or a professional driver to schools. To date the artmobile has visited 159 communities and attendance has been over 400,000. The Artmobile requires a level site at least 35 ft. wide by 75 ft. long with electrical service connections. Because it folds out and forms an exhibit area with circulation pattern, it needs a 25 ft. vertical clearance. (Personal correspondence with M. E. Borne, Director of State Service, Arkansas Arts Center)

5. SALEM, ARKANSAS

Salem School District No. thirty

Title III Planning Project, OE No. 66-72 $19,400.

MOBILE ART AND SCIENCE UNIT

The mobile unit is proposed as a part of a model school development.

6. BAKERSFIELD, CALIFORNIA

Kern County School District

MOBILE EDUCATIONAL UNIT

Units used for industrial arts, homemaking, typing and library purposes. (Personal correspondence with H. J. Shelly, Chief, Bureau of Audiovisual and School Library Education, California State Department of Education.)

7. SAN LORENZO, CALIFORNIA

San Lorenzo Unified School District

Title III Planning Project, OE No. 66-993 $12,400.

TRANSPORTABLE INDUSTRIAL ARTS LEARNING LABORATORIES

Four industrial arts transportable units would be developed for use by the industrial arts teachers in each of four junior high schools which do not have adequate facilities. Each unit would be equipped to serve one of the four industrial arts course offerings. Each unit would accommodate a minimum class size of 24 in a 30' x 50' transportable laboratory. Every nine weeks the laboratories would be rotated between the four schools thus offering four distinct phases of the industrial arts program. They would (a) be used 100% of the time, (b) be less expensive than securing four completely furnished laboratories where space and equipment is not now available, and (c) permit teachers to concentrate on their area of interest. (Personal correspondence with Mr. Walter Schwaar and study evaluation of application for grant.)

8. AURORA, COLORADO

MOBILE REMEDIAL READING UNIT

Units are provided with electronic equipment.

9. DENVER, COLORADO

Colorado Department of Education

MOBILAB FOR INSERVICE SCIENCE EDUCATION

A thirty-two foot laboratory on wheels is equipped for the inservice education of elementary and junior high teachers in science and its related fields (including modern mathematics). In addition to equipment for performing experiments the Mobilab contains a curriculum and reference library in science and mathematics and a collection of basic audio-visual aids. The Mobilab will visit school districts and give instruction to teachers for one day but no more than a week. The Mobilab has twelve workbench stations and a normal program offers two sessions per day. (Personal correspondence with L. P. Black, Assistant Commissioner of Education, and a booklet.)

10. GUNNISON, COLORADO

Gunnison Watershed School District RE 1-J

Title III Planning Project, OE No. 66-669 $12,323.

PROPER UTILIZATION OF STUDENT TRANSPORTATION TIME

A project planned to provide individualized, recreational, cultural enrichment and curiosity - inducing programs for transported students (from first thru twelfth grades). The project visualizes the "school bus as a mobile classroom unit". The planning phase suggests the use of a headset for each student on the bus and a monitor for each two students (on one seat). A selector switch would make it possible to tune into one of two video tape channels, one of three audio tape channels and one of three radio programs or one of twelve individual cartridge tape recorders. Students may sit idle and talk with friends.

10. (Continued)

It is pointed out that the bus can also be used when students are not being transported. Next phase of development program is pending. (Personal correspondence with A. E. Christoff, Director of Instruction, and proposal review).

11. DANBURY, CONNECTICUT

Danbury School District

Title III Planning Project, OE No. 66-146 $70,160.

MOBILE UNITS

A center for Educational Services is being planned to include mobile units, television studios, data processing and a multimedia audiovisual system.

12. ATLANTA, GEORGIA

State Department of Education

TRAVELING SCIENCE TEACHER PROGRAM

In 1958 the State Department of Education added a person to the staff to revamp science education in the state. Later five outstanding science teachers were selected to attend thirteen week course at Oak Ridge Institute of Nuclear Studies under grants from NSF and AEC. Traveling teachers were given vehicles to carry three-fourths ton of equipment and materials. Over 3000 elementary teachers have had direct experience in workshops conducted by the traveling teachers. Over 1400 schools have been visited. Over 760,000 student hours of lecture-demonstrations have been offered. (Personal correspondence with Mr. H. V. Bullock, Chief Curriculum Leadership Section, Georgia Department of Education.)

13. LAFAYETTE, GEORGIA

Walker County

Title I Project - 20-146-000146-601 $78,467.

LANGUAGE ARTS - REMEDIAL READING UNITS

Two portable classroom units will be provided in a program to establish a diagnostic reading and remedial instructional center to supplement the school system's remedial programs within individual schools. It will provide additional facilities, material and equipment and inservice opportunities for teachers and parents working with children participating in the project. Objective is to raise the grade level reading abilities of the students involved.

14. MILLEN, GEORGIA

Jenkins County School District

Title I Project - 20-082-0000082-601 $198,000.

MOBILE CLASSROOMS

Six mobile classrooms will be procured with new equipment to expedite the development of additional skills in reading, business education, science and mathematics. New equipment includes audio-visual materials, particularly films, tape recorders, and television.

15. HONOLULU, HAWAII

Hawaii State Department of Education

MOBILE SHOP CLASSROOM

Description not received yet (Personal correspondence with Dr. Lowell D. Jackson, State Superintendent of Education.)

16. ABERDEEN, IDAHO

School District No. 58

Title III Planning Project, OE No. 66-1083, $31,900.

MOBILE EDUCATIONAL DIAGNOSTIC LABORATORY

The project is intended to bring the services of a qualified psychologist from Idaho State University at Pocatello to 48 school districts and 12 private schools in 22 counties of southeastern Idaho, which has a rural student population of 3500, by means of a mobile educational diagnostic lab. Various state agencies such as: State School for Deaf, State Department of Education, State Department of Health, State Department of Vocational Education, State Department of Rehabilitation, State University, and others, will participate in the planning of the project. The service will also provide inservice education for teachers in these rural schools. (Personal correspondence with Harold R. Black, Idaho State University, and project abstract review.)

17. RUPERT, IDAHO

Minidoka County Schools Joint District No. 331

Title III Planning Project, OE No. 66-1183, $15,900.

MOBILE ELECTRONICS LABORATORY

A mobile electronics laboratory will be developed for use by elementary and high school students by converting a Federal surplus bus.

18. SPRINGFIELD, ILLINOIS

Illinois State Superintendent of Public Instruction

MOBILE VOCATIONAL GUIDANCE UNITS

Two 30 ft. long mobile, self-propelled, coach-type units are traveling in 12 counties in southern Illinois providing guidance counseling needs to (a) non-college bound high school seniors, (b) young unemployed people who have graduated from high school in the past three years, and (c) young people who have dropped out of school. The guidance counselor has already been a great help, some school official report. (Personal correspondence with Mr. Ray Page, Superintendent of Public Instruction.)

19. SPRINGFIELD, ILLINOIS

Illinois State Museum of Natural History and Art

MUSEUMOBILE

20. BEDFORD, INDIANA

Four-County Consortium including the North Lawrence Community Schools

Title III, Operational Project, OE No. 66-246, $42,424.

MOBILE COUNSELING CENTER

A mobile counseling unit complete with staff and equipment, will rotate between each of 17 high schools in the rural area of southern Indiana and will provide economical guidance services to supplement those existing in the four counties. Dropout rates, absenteeism, and educational and vocational aspirations will be assessed and the attitudes of teachers, students, and parents will be surveyed to determine the effectiveness of education. A trailer unit, 40 ft. long and

20. (Continued)

10 ft. wide, is outfitted with three tape recorders, counselor reference books, testing materials, desk chairs, and other equipment. The trailer unit will be hauled from school to school by a truck unit, and the staff, made up of faculty from the Counseling Center of Indiana University, drives to and from the schools from Bloomington each day in a six passenger station wagon. (Personal correspondence with Mr. R. B. Winborn, Indiana University and Technical Report of Project.)

21. MUNCIE, INDIANA

Muncie Community Schools

ART-MOBILE

An artmobile, 50 ft. long and 10 ft. wide, was developed by the Ball State University Art Department as a part of their Cultural Enrichment Program to provide new or improved education activities in the enrichment of the art experience. The Art-mobile, manned by students from the Ball State Art Department and fitted with a display of art objects from Ball State, visits schools in the district where children are given the opportunity of viewing the works of art. The trailer unit is transported between its display dates by a commercial moving company. (Personal correspondence with W. W. Lyon, Director of Instruction, Muncie Schools.)

22. EPWORTH, IOWA

West Dubuque Community School District

Title I Proposed Project

MOBILE CLASSROOM

A Mobile Classroom is contemplated to serve the public and non-public schools in the district in which a curriculum center has been established and a delivery service maintained. (Personal correspondence with Mr. R. F. Van Dyke, Coordinator, Title I ESEA, Iowa State Department of Public Instruction.)

23. BOYD COUNTY, KENTUCKY

ONE MOBILE INSTRUCTIONAL UNIT FOR HOMEBOUND STUDENTS

24. FLOYD AND LETCHER COUNTIES, KENTUCKY

FOUR MOBILE CLASSROOMS USING CONVERTED SCHOOL BUSES

25. OWENSBORO, KENTUCKY

Owensboro Public Schools

Title III Operational Project, OE No. 66-1313 $80,000.

NATURAL SCIENCE MOBILE MUSEUM

Portable natural science exhibits will travel from a base museum to classrooms in four counties. The exhibits will cover the fields of Geology, Archaeology, Botany, Zoology, Ornithology, Entomology, Herpetology, Ichthyology, Conchology and other nature hobbies. A professional advisory committee assists in the development of exhibits which are available to teachers on a "call-basis". A mobile unit will carry exhibits such as a "display of insects" to the teacher and return it later to the base museum. (Personal correspondence with Mr. Maurice Henton, Director and Mr. Joe Ford, Assistant Director.)

26. PULOSKI COUNTY, KENTUCKY

ONE MOBILE SPEECH THERAPY CLASSROOM

27. ROCKCASTLE COUNTY, KENTUCKY

TWO MOBILE INSTRUCTIONAL UNITS USING CONVERTED SCHOOL BUSES

28. BATON ROUGE, LOUISIANA

East Baton Rouge Parish School District

Title III Operational Project, OE 66-1332, $49,200.

ARTS AND SCIENCE CENTER

Center will be expanded through the use of traveling exhibits and a new planetarium.

29. NEW ORLEANS, LOUISIANA

Orleans County

Title I Project, 28-36-36-1, $1,231,956.

PORTABLE CLASSROOMS

Twenty-seven portable classrooms will be rented to house additional kindergartens and first grade rooms and additional instructional equipment will be procured to aid in the development of underprivileged pre-school and first grade children.

30. KENNEBUNK, MAINE

Kennebunk School Department

Title III Operational Project, OE No. 66-409 $31,740.

MOBILE REMEDIAL READING LABORATORY

A custom built mobile unit, the "Roving Reader", will be used for remedial reading instruction for over 200 students at several elementary and secondary schools. A mobile self-propelled, self-

30. (Continued)

contained, Teaching, Testing and Training Laboratory (bus-type), whose interior dimensions are 30 ft. long, 7 ft. wide and 7 ft. high, is divided into two classrooms having 10 audio cubicles, work counter, desk and complete instructional equipment, such as: Flannel boards, records, filmstrips, tape recorder, tachistoscope, opaque projector, overhead projector and so on. During the summer months the unit will be used on a neighborhood basis. The unit will have facilities for a remedial reading teacher to conduct instruction in comprehension, phonetics and vocabulary. It will also be adaptable for special programs for (a) retarded, emotionally disturbed, or gifted youngsters, (b) guidance services or (c) inservice teacher training. (Personal correspondence and data from L. Martin, Administrative Assistant to Superintendent.)

31. GREENBELT, MARYLAND

National Aeronautics and Space Administration
Goddard Space Flight Center

SPACEMOBILES

Thirty-one ton panel vehicles are used to transport models and audio-visual devices which are moved from the mobile units and placed in classrooms or auditoriums to provide lecture-demonstrations on the Space Sciences. (Personal correspondence with E. Bailey, Educational Programs Officer, NASA.)

32. BROWN CITY, MICHIGAN

MOTORIZED CLASSROOM FOR SPECIAL AND SUPPLEMENTARY EDUCATION

6

33. DETROIT, MICHIGAN

Detroit Institute of Arts

MOBILE ART GALLERY

A three-year old van-type mobile unit, 8 ft. wide and 50 ft. long, provides a gallery area 32 ft. long and is equipped with pegboards for easy hanging of pictures. The art mobile travels during a 5 and one half month season and visits 40 cities within the state. (Personal correspondence with Honor Williams, Activities Coordinator.)

34. LANSING, MICHIGAN

Michigan Historical Commission

HISTORYMOBILE

A 54 ft. long trailer unit especially made at a cost of $50,000 houses an exhibit of the Michigan's history. Beginning its tour in April and ending in November each year the mobile unit visited 59 communities and traveled more than 1500 miles making it possible for 116,000 people to see the exhibit. (Personal correspondence with Solan Weeks, Museum Director.)

35. MARSHALL, MICHIGAN

Calhoun Intermediate School District

Title I, Operational Project, 32-42-413-1, $75,000.

MOBILE REMEDIAL READING UNIT

A coach-type, four wheel self-propelled unit, with 12 linear ft. of space fitted for remedial reading instruction and outfitted with necessary instructional equipment is used, in accordance with state regulations, for diagnostic purposes with individual children. It serves 14 rural schools in the county. (Personal correspondence with N. L. Kreuze, Federal Project Director, Calhoun Intermediate School District.)

36. MOUNT CLEMENS, MICHIGAN

Monroe County

Title I Project, 32-50-1604 K 12-1, $67,690.

MOBILE LIBRARY SERVICES AND EDUCATIONAL MEDIA

Enrichment of the educational program thru the provision for varied instructional media to partially compensate for experiences lacking in the backgrounds of deprived children. A twelve passenger vehicle will be used to transport materials and equipment from school to school for after-school and Saturday library instruction.

37. PORT HURON, MICHIGAN

MOBILE CLASSROOM

Unit is used for speech therapy, audiology, teacher consultations, physical therapy, visiting teachers and school diagnostician.

38. ALBERT LEA, MINNESOTA

Independent School District No. 241

Title III Operational Project, OE No. 66-1057, $44,600.

MOBILE FIELD RESOURCES LABORATORY

A mobile laboratory will be used to study, photograph, and classify specimens fresh from the field.

39. DULUTH, MINNESOTA

Northeastern Minnesota Supplementary Educational Services Center

Title III Planning Project, OE No. 66-211,	$38,000.

MOBILE EDUCATIONAL UNITS

As a part of the services center, four mobile units are planned in various curriculum areas to provide educational services and demonstrate new methods and materials. The mobile units are as follows:

a. traveling teaching materials library
b. traveling museum and/or art exhibit
c. mobile guidance and counseling services
d. mobile driver training unit

The center will serve 46 school districts in an eight county region of northeast Minnesota. (Proposal review of subject project.)

40. MARSHALL, MINNESOTA

Lyon County

Title I Project, 33-42-413-1	$75,000.

MOBILE LEARNING CENTER - LANGUAGE ARTS, REMEDIAL

A mobile remedial reading center having 30 study carrels and high fidelity teacher controls will be rented and equipment such as motion picture projectors, tape recorders, phonographs, and a stock of related tapes and films will be purchased to improve the scholastic achievement of educationally deprived students.

41. GREAT FALLS, MONTANA

Cascade County School District No. 1

Title III Planning Project, OE No. 66-1583,	$10,500.

MOBILE CONSERVATION EDUCATION UNIT

Unit is a part of a conservation education program, which involves camping and field studies.

42. HELENA, MONTANA

Montana Department of Public Instruction

MOBILE MATHEMATICS - SCIENCE TEACHING UNIT

A 23 ft. trailer laboratory is hauled from school to school for a stay of several days. It is designed and equipped for in-service education of elementary and junior high teachers in mathematics and science. It has a myriad of equipment for performing experiments and also contains a curriculum and reference library in both fields and a collection of basic audio-visual aids. No charge is made to schools for use of the laboratory which has been in operation since 1961. The state department of education "is investigating the possibility of a reading laboratory." (Personal correspondence with Mr. James F. Watkins, Deputy Superintendent.)

43. FREMONT, NEBRASKA

Educational Service Unit No. Two

Title III Proposed Project

SEVEN MOBILE EDUCATIONAL UNITS

"Project MUSE (Mobile Units for Supplementary Education)" calls for the development of seven mobile units initially and fourteen additional units in subsequent years to bring educational facilities to 180 schools in 4 counties in eastern Nebraska, as follows:

a. One mobile unit manned by a speech therapist and a remedial reading teacher.

b. One mobile music unit to be used by a traveling music teacher with necessary equipment.

c. Two Mobile Nursing Service Units to provide health checks to all students in the region.

d. Three Industrial Arts units to be manned by traveling industrial arts teachers and to visit the class II schools.
(Project proposal review from Floyd Hutchinson, Director, Fremont, Nebraska.)

44. CARSON CITY, NEVADA

Elko County School District

Title I Proposed Project

MOBILE SPECIAL OPPORTUNITIES LABORATORY

The proposed program contemplates the development of a mobile unit "equipped and staffed to provide a comprehensive and worthy home and family environment not presently a part of the child's background." The facility would be "moved among various attendance areas having high concentration of economic and educational deficiencies and would be planned to reinforce the "3R concept of education" by "physical remediation, emotional stabilization and social development". (Personal correspondence with R. M. Gunkel, Coordinator-Federal Programs, Nevada, Department of Education.)

45. CARSON CITY, NEVADA

Nevada State Museum

MUSEUM MOBILE UNIT

Since 1954, a 30 ft. long trailer-type mobile unit has been traveling between schools in Nevada. However, because of the large distance covered, the unit does not provide adequate time for student viewing. It is expected that traveling or loaned material will replace the mobile unit. (Personal correspondence with J. W. Calhoun, Director.)

46. OLD BRIDGE, NEW JERSEY

Madison Township Public Schools

Title III Planning Project, OE No. 66-1023, $37,700.

MOBILE SCIENCE LABORATORY

A program for enrichment in the sciences, arts, and social studies will involve the development of plans for a mobile laboratory.

47. TRENTON, NEW JERSEY

New Jersey Tercentenary Commission

NEW JERSEY HISTORY MOBILE

48. ALBUQUERQUE, NEW MEXICO

Educational Service Center

MOBILE INSTRUCTIONAL MATERIALS CENTERS

Two traveling educational units provide curriculum materials to schools served by the Center.

49. DE WITT, NEW YORK

Jamesville - De Witt Central School District

MOBILE READING LABORATORY - LIBRARY

50. INTERLAKEN, NEW YORK

Interlaken Central School District

MOBILE READING LABORATORY - LIBRARY

51. ROCHESTER, NEW YORK

Monroe County School District

Title I Project, 42-26-16-00-66-008, $47,600.

TRAVELING ART GALLERY

An Artmobile will be used as a mobile art museum to bring original works of art to public and private elementary schools in disadvantaged areas of the city.

52. SCHENECTADY, NEW YORK

Schalmont Junior-Senior High School

MOBILE READING LABORATORY - LIBRARY

53. TROY, NEW YORK

Troy City School District

MOBILE READING LABORATORY - LIBRARY

54. RALEIGH, NORTH CAROLINA

State Department of Public Instruction

Title II Proposed Project

MOBILE INSERVICE TRAINING UNIT

A proposed program involves a traveling unit to "serve as an aid in the Inservice Training Program for our instructional staffs in certain areas of the state. The unit will be equipped with

54. (Continued)

professional library materials, instructional materials, and modern media materials including films, etc..
(Personal correspondence with J. L. Pierce, Director of School Planning, Department of Public Instruction, North Carolina.)

55. GRAND FORKS, NORTH DAKOTA

Grand Forks Public School District No. One

Title III Planning Project, OE No. 66-574, $22,055.

SUPPLEMENTARY EDUCATIONAL CENTER

An Educational Development Association representing 24 public school districts, 4 private schools and 5 cultural agencies is investigating the most critical educational and cultural needs of an 11-county rural area having 214,000 people. A tabulation of the proposed projects showed greatest interest in the following: (1) Educational TV, (2) Diagnostic Reading Clinic and In-Service Training Center, and (3) Mobile Demonstration Team.
(Personal correspondence with Dr. H. Edwin Cramer, and proposal review.)

56. CINCINNATI, OHIO

Cincinnati City School District

Title III Planning Project OE No. 66-298, $51,950.

MOBILE SCIENCE LABORATORY

A part of this project involves the development of a mobile science laboratory and traveling exhibits.

57. DELAWARE, OHIO

Liberty Union Local School District

Title I Project, No. 45-21-30-3-1,	$14,900.

MOBILE LANGUAGE LABORATORY

A mobile unit will be used by special language arts teachers as a base of operations for work with educationally-deprived elementary school students.

58. RAVENNA, OHIO

Portage County School District

Title I, Project No. 45-67-1010-1-11,	$67,000.

MOBILE LANGUAGE ARTS-REMEDIAL UNIT

A converted school bus will be used by reading specialists and speech and hearing therapists to provide remedial teaching to referral students.

59. TROUTDALE, OREGON

Reynolds School District No. 7

Title I Planning Project (partial)	$48,000.

MOBILE READING CLASSROOM

A custom built house trailer, 12 ft. wide and 40 ft. long was designed in January 1966 specifically as a reading classroom for disadvantaged children in the school district. The $5,500 unit was outfitted with $10,000 worth of reading instruction equipment -- diagnostic, developmental and remedial. It is a two teacher unit providing space for small group instruction in one end and individual instruction in the other end -- total capacity about 20 children and 2 teachers. (Personal correspondence with Dean W. Tate, Assistant Superintendent.)

60. JIM THORPE, PENNSYLVANIA

Carbon County School District

Title III, Operational Project, OE No. 66-1066, $96,500.

MOBILE MENTAL HEALTH CLINICS

Three mobile trailer units, 30 ft. long, with three offices, complete with testing and secretarial equipment will provide facilities, along with a traveling team of psychologists, psychiatrists, and support personnel, to provide or supplement diagnostic, consultative and/or therapy services for the emotionally and socially disturbed school children of Region N area in Pennsylvania (seven Northeastern Counties). (Personal correspondence with A. V. Rains, Director of the Psychological Clinics, Kutztown State College, Pennsylvania).

61. MERCER, PENNSYLVANIA

Mercer County Public Schools

Title III Planning Project, OE No. 66-1475, $70,300.

MOBILE ELECTRONIC MAINTENANCE UNIT

Mobile unit will be constructed and equipped to provide preventative and breakdown maintenance service to various audio-visual instructional equipment, such as: projectors, tape recorders, record players, radio and television receivers and so on -- which is being acquired thru ESEA and NDEA. Plans call for modification of Lyncoach Aluminum "Airvan" mounted on a 3/4 ton , forward control, truck chasis which will have storage and work area, generator, heater and air conditioner, and various test equipment and replacement parts. Also involved is an inservice program to assure full and maximum utilization of instructional equipment. (Personal correspondence with M. F. Rishell, Assistant Company Superintendent.)

62. PHILADELPHIA, PENNSYLVANIA

Franklin Institute

TRAVELING SCIENCE EDUCATION VANS

A rugged cargo van carries lecture-demonstrations to schools throughout Pennsylvania communities. Over 45,000 students witnessed the "Expedition in Science" lectures in the first 5 months' operation. (Brochure, see Appendix A, Ref. 26)

63. UNIVERSITY PARK, PENNSYLVANIA

Pennsylvania State University

Proposed project

MOBILE DIAGNOSTIC CLINICS

A child study center involves the procurement of two mobile clinics such as four-wheel coach-type units with expandable roof which will provide highly mobile clinical work space. Clinicians will be taken to observe children in their regular environment and will be able to communicate with their teachers and other school personnel. (Proposal review, Dr. Joseph French, Penn State University).

64. WELLSBORO, PENNSYLVANIA

Pennsylvania Region I of 35 secondary schools

Title III Operational Project, OE No. 66-969, $45,400.

ARTMOBILE

Works of original art will be assembled into exhibits which will be rotated among 35 secondary schools in seven counties of Northeast rural Pennsylvania. A traveling unit (truck) will be used to transport the prepared display units to and from schools and the program involves exhibition, lecture and demonstration services to be coordinated by the Art Department of Mansfield State College with the existing courses in art, the humanities and world culture carried on in the schools. (Personal discussion and correspondence with Dr. S. T. Bencetic, Project Director).

65. CONWAY, SOUTH CAROLINA

Horry County Schools District

Title III Operational Project, OE No. 66-1357, $34,900.

MOBILE ART EXHIBIT

One part of a Cultural Uplift Project involves the assembly and transportation of an exhibit of masterpieces to each of the 43 schools in the county. Each of the approximately 20,000 students in public and private schools in the county, who show special interests or aptitudes in creative arts will be assigned to one of six creative art centers for four weeks of instruction in arts and crafts. (Personal correspondence and proposal review).

66. OAK RIDGE, TENNESSEE

Oak Ridge Associated Universities

MOBILE RADIOISOTAPE TRAINING LABORATORY

Three mobile laboratories travel to small colleges throughout U.S. to provide lecture demonstrations for two week periods. The trailer units are 37 ft. long hauled by tractors.

67. SAN ANTONIO, TEXAS

Bexar County School District

Title I Project, No. 53-015-910-01

MOBILE LANGUAGE ARTS AND MATHEMATICS UNITS

Three mobile units will be used in a proposed remedial program for 660 educationally deprived students.

68. PITTSFORD, VERMONT

Rutland Northeast Supervisory Union

Title III Operational Project, OE No. 66-997, $42,200.

MOBILE LIBRARY SERVICE CENTER

A mobile van will transport library and instructional materials among ten schools in the district.

69. RICHMOND, VIRGINIA

Virginia Museum of Fine Arts

GALLERIES-ON-WHEELS

Four huge galleries-on-wheels carry seven exhibitions of original art to Virginians during a season. The larger mobile units are truck-trailer units 44 ft. long (cab included). When set up on a site the gallery opens out with side raising flaps to cover an area 51 ft. long and 22 ft. wide. (Personal correspondence with G. J. Martin, Assistant Administrator).

70. CHARLESTON, WEST VIRGINIA

Kanawha County Schools

Title III, Planning Project

MOBILE DIAGNOSTIC AND REMEDIAL READING UNIT

Two mobile units are being procured and they will be outfitted with special equipment and materials to make it possible for highly trained personnel to diagnose specific problems and proceed to accomplish correction of the problems. One unit will be extremely mobile, will move on a day-to-day basis and will probably be "a self-motorized unit" of the four wheel coach-type. The other might be a trailer unit. (Personal correspondence with C. E. Burdette, Director of Federal Programs, Kanawha County Schools.)

71. PRESTON, WEST VIRGINIA

Preston County Schools

Non-funded proposed operation project

MOBILE MOTORIZED CLASSROOMS

Mobile classrooms will be driven to remote neighborhood areas of the county which covers 645 sq. miles of rugged mountain terrains and a population of 27,000. The mobile unit will be over 26 ft. long and outfitted for a teacher and teacher-aide to conduct a class for six prekindergarten children and their mothers. The unit will be parked in a predetermined spot in the neighborhood and give two training classes per day. The objective will be "to influence continuing desirable behavioral development relevant to individual circumstances and needs, prekindergarten thru kindergarten, as a remedial deterrent and counter action to cultural, social and educational deprivation in the environment. Titled "Project Presight" it will consist of two experimental groups and a control group. It also suggests the use of portable classrooms for use in kindergarten rooms in several communities. (Personal correspondence with Dr. A. N. Hofstetter of West Virginia University and proposal review).

72. SPENCER, WEST VIRGINIA

Roane County School System

MOBILE READING LABORATORY

A mobile unit is used by a permanent teacher to visit each school in the district. The unit stays at each school for nine weeks and the children attend each day for one hour and are given tests at beginning and end of the course to measure their gain. The unit is forty feet long and ten feet wide with an eight foot ceiling. It is equipped with electronic equipment, reading materials, and a five hundred book library furnished by SRA and EDL. It has electric heat and is air conditioned. Children like the lab because it is pleasant and very attractive. (Personal correspondence with Mr. John D. Kingery).

73. APPLETON, WISCONSIN

Cooperative Educational Service - Agency No. Eight

MOBILE DIAGNOSTIC LABORATORY

A diagnostic reading laboratory to provide corrective teaching procedures for students with reading problem.

74. GREEN BAY, WISCONSIN

Cooperative Educational Service - Agency No. Nine

ART MOBILE

75. MADISON, WISCONSIN

Cooperative Educational Service - Agency No. Fifteen

Title III Operational Project, OE No. 66-1344, $422,100.

MOBILE AUDIO-VISUAL CENTER

A mobile unit, as part of the Mobile Instructional Materials Center, developed by the Bureau of Audio-visual Instruction, University of Wisconsin.

76. MADISON, WISCONSIN

Bureau of Handicapped Children, State Department of Public Instruction

MOBILE DIAGNOSTIC HEARING LABORATORY

77. NEWCASTLE, WYOMING

School District No. One

Title III, Operational Project, OE No. 66-1675, $27,000.

MOBILE HISTORY LABORATORY MUSEUM

A mobile museum of the van-type, 8 ft. wide and 29 ft. long will be procured to carry display modules and projection equipment to 6 rural-urban communities and 22 isolated rural one-room schools in two counties of Wyoming. The display modules and the van will be designed so that modules can be easily moved into the van or into storage. Teaching kits will be coordinated with such historical exhibits as: "coal production in Cambria", "History of Oil in Northeast Wyoming", "Geological Evolution of Wyoming", etc. (Proposal review from M. S. Macy, Superintendent of Schools, Newcastle).

Appendix C
Traveling Educational Units
Feasibility Study, 12/30/66

List of Manufacturers of Traveling and Mobile Units

As a result of the bibliographic search and the search for educational projects which involved a form of mobility, a survey of manufacturers was made. Personal letters were sent to 51 manufacturers of traveling, mobile or transportable units requesting data showing the types of units which are manufactured, descriptive material, specifications and cost estimates plus descriptions and/or photographs of the typical units which have been manufactured or outfitted by the firm.

At the time of the survey made in September, nineteen manufacturers replied and forwarded data which is summarized and shown in the following list of manufacturers. The listing describes the type of units manufactured and the educational uses being made of the traveling units. Related uses are also indicated to show possibilities for broader adaptation to the educational field.

Based on the receipt of additional data received since the survey was made and knowledge of more manufacturers, it is believed that both the number of manufacturers could be expanded and the types of mobile unit design could be added to.

1. **Atlantic Mobile Corporation**
Berlin, Maryland

Manufactures: All types of trailer units from 16 ft. to 46 ft. in length, 8 ft. and 10 ft. in width, single and tandem axles, including a patented collapsible trailer unit.

Typical Mobile Units:

(1) Mobile Radio and Television Studios
(2) Mobile Display Units (Showrooms)
(3) Mobile Classrooms
(4) Mobile Laboratories for Geological Surveys, Petroleum and Mineral Surveys, Soil Testing, Materials testing (Concrete and Asphalt)
(5) Mobile Industrial Trailers, used as locker rooms, tool rooms, construction offices, dormitories, kitchen-dining units.
(6) Mobile Libraries
(7) Mobile Banking Facilities
(8) Mobile Electronic Equipment Units
(9) Mobile Hospitals and First Aid Units

2. **Audio-Engineering Company, Inc.**
New London, New Hampshire

Manufactures: Mobile travel trailer-type (Airstream), various lengths, fully equipped and adapted for educational purposes.

Typical Travel Units:

3. Bechman Instrument, Inc.
Fullerton, California

Manufactures: (a) Mobile Van-type, 26 ft. long, four-wheel chassis, self-propelled and self-contained coaches fully equipped and adapted to any chemical laboratory function.

(b) Mobile trailer type, double axle, in various lengths fully-equipped and adapted to any chemical laboratory function.

Typical Mobile Units:

(1) Mobile Air-Quality Monitoring Laboratory

4. Calumet Coach Co.
Chicago, Illinois

Manufactures: (a) Self-propelled, 8 ft. wide and up to 35 ft. long providing about 26 linear ft. of working area.

(b) Trailer units, 8 or 10 ft. wide and up to 50 ft. in length.

(c) Carried units limited to sizes up to 8 ft. wide and 20 ft. length.

Typical Mobile Units:

(1) Mobile Libraries and Bookmobiles
(2) Mobile Classrooms
(3) Mobile Museums
(4) Mobile Display and Sales Showrooms
(5) Mobile Theatres with Stage and Props
(6) Mobile Movie Theatres with projection equipment and film libraries
(7) Mobile workshops for instruction in woodworking, auto mechanics, home economics, welding and other crafts
(8) Mobile Health Units for Medical, Dental, Veterinary, and Hygiene
(9) Mobile Kitchen, Cafeteria, and Food Service Units.
(10) Mobile Barber Shops
(11) Mobile Electronic Laboratories
(12) Mobile Disaster Units
(13) Mobile Concession Units
(14) Carnival Game Trailers

4. (Continued)

(15) Oil Field Crew Units
(16) Mobile Offices and Tool Rooms
(17) Mobile offices for survey parties, interviewing and area assessment programs.

Budget estimate of cost: $6,000 to $30,000.

5. Clark Equipment Company
Cortez Division
Battle Creek, Michigan

Manufactures: Bus type, 17 ft. long, full integrated, four wheel coaches, fully equipped and adapted to any educational function; approximate cost: $11,000.

Typical Mobile Units:

(1) Mobile Medical Examination Labs.
(2) Mobile Language Laboratory Units.
(3) Mobile Store Display Units
(4) Mobile Printing Equipment Sales Demonstration Units
(5) Mobile Photocopy Demonstration Unit
(6) Mobile Kitchen Equipment Showroom.
(7) Mobile Surveyor's Unit
(8) Mobile Civil Defense Emergency Unit
(9) Mobile Educational Offices
(10) Mobile Transmitting Television Stations
(11) Mobile Classrooms (specialized)

6. Dorsey Trailers
Elba, Alabama

Manufactures: Complete trailers for special purposes, all sizes, semi and full trailers.

Typical Mobile Units:

(1) Mobile Classrooms used for Visual aid, education, electronic pianos and different types of laboratories.
(2) Mobile Electronics Labs
(3) Mobile mated trailers for use as a photo laboratory.
(4) Aircraft Flight Trainer Units
(5) Mobile Communications Laboratory

6. (Continued)

(6) Mobile Water Pollution Control Laboratory
(7) Mobile Welding and Material Exhibits Laboratory
(8) Mobile chemical Laboratory
(9) Mobile Navy Pilot Briefing Rooms
(10) Mobile Telephone Switching Centers

7. Educational Laboratories Co., Inc.
Subsidiary of B. C. S. C. Inc.
Columbus, Ohio

Manufactures: Trailer Units, 10 ft. wide and 40 ft. long and 12 ft. clear height. (with tractor)

Typical Mobile Units:

(1) Mobile Remedial Reading Laboratory
(2) Mobile Health Laboratory
(3) Mobile Library-Study Unit
(4) Mobile Physical Education Unit

8. Evans Industries, Inc.
Los Angeles, California

Manufactures: Standard trailer units, 10 ft. by 55 ft. and expandable trailer units, 20 ft. wide and 36 ft. to 55 ft. long (but 10 ft. wide when collapsed for road travel.)

Typical Mobile Units:

(1) Mobile Classrooms for use as Driving Training Simulators including student positions and audio-visual equipment -- in various widths and lengths.

9. The Gerstenslager Company
Wooster, Ohio

Manufactures:
(a) Coach-type, 16 ft. interior length, four-wheel, self-propelled, self contained mobile unit.

(b) Transit Bus style, 24 ft. interior length, four wheel, self-propelled, self-contained mobile unit.

(c) Semi-Trailer style, 30 ft. and 40 ft. long units for use with tractors, fully-equipped mobile units.

Typical Mobile Units:
(1) Mobile Libraries
(2) Bookmobiles
(3) Mobile Medical Units
(4) Mobile X-ray Units
(5) Mobile Sales Display Coaches
(6) Mobile Military Service Units

10. Lancaster Associates
Johnson City, Tennessee

Manufactures:
(a) Wheeled (transportable) units of various sizes.

(b) non-wheeled relocatable units of various sizes.

Typical Transportable Units:
(1) Mobile Laboratory for Food and Drug Administration of U. S. Department of Health, Education and Welfare.
(2) Mobile Medical Labs.

11. Lyncoach and Truck Co., Inc.
Oneonta, New York

Manufactures: Integral Bus-type, Body-behind-cab
Trailer and Semi-trailer Units

Typical Mobiel Units:
(1) Mobile Audio-Visual Unit, designed to provide complete facilities for audio-visual and motion-picture presentations from within the unit interior or the special roof-top platform.
(2) Book mobile, self-contained, up to 35 ft. long providing space for bookshelfs, phono records, and librarians facilities.

11. (Continued)

(3) Mobile Dental Unit, houses 2 complete modern dental offices

(4) Mobile Health Clinic Trailer unit, featuring dressing room, reception room, examination room, and fully-equipped laboratory.

(5) Mobile Dental Clinic Trailer unit, provides complete facilities for diagnostic X-ray examination and dental treatment.

(6) Mobile Health Clinic, bus-type completely equipped.

(7) Mobile Laboratory, bus-type, 18 ft work space behind driver providing such equipment as: centrifuges, EKG chair, electrocardiograph, incubator examination bench and so on.

(8) Mobile X-ray Clinic, bus-type, 21 ft. behind driver with complete X-ray equipment.

(9) Mobile BloodDonor Semi Trailer, 40 ft. long, providing space for four blood drawing tables with refrigerated storages areas beneath.

(10) Mobile Dental Clinic, 20 ft. trailer with work counter, modern dental operatory, Fluoride Treatment Area, 3-chair vacudent installation.

(11) Mobile Health Unit, integral, with an enclosed patient registration area and aisle for efficient walk-thru patient flow.

(12) Mobile Bank, integral, includes teller windows, private office for personal banking services, clerical section, money vault and so on.

(13) Audio-Visual Library Trailer, with public address and audio-visual equipment

(14) Mobile Motion Picture Projector Booth with wide range public address system.

(15) Mobile Reading Unit, semi-trailer (or integral), with remedial reading equipment.

(16) Mobile Industrial Display Van

(17) Training Laboratory, bus-type

(18) Mobile Sales Display Trailer

(19) Photography Vans

12. Magnolia Corporations
Vicksburg, Mississippi

Manufactures:
- (a) Relocatable Educational Units transported on wheels by tractors, in various sizes from 10 ft. wide to 56 ft. long.
- (b) Modular relocatable units of various sizes (also transportable)
- (c) Expandable Educational Units.

Typical Mobile Units:
- (1) Transportable Seminar and Conference Rooms
- (2) Transportable Offices
- (3) Transportable Driver Training Units
- (4) Transportable Health Examination Units
- (5) Transportable Classroom
- (6) Transportable Dispensaries
- (7) Transportable Adult Education Units

Owners:
- (1) Primary and Secondary School Systems
- (2) Colleges
- (3) Government agencies
- (4) State Departments of Public Safety
- (5) State Departments of Health
- (6) Foreign Governments

13. Medical Coaches Incorporated
Oneonta, New York

Manufactures: Club wagon, Tandem-wheeled Trailer, Triple Axle Trailer, Transferable Body, Custom-Built Coach, Tractor Trailer.

Typical Mobile Units:
- (1) Mobile Science Teaching Laboratory, 30 ft. to 40 ft. long, triple axle trailer, equipped with science lab and demonstration classroom facilities. ($15,000 - $20,000).
- (2) Mobile Library Classroom, 35 ft. to 47 ft. long, triple axle trailer equipped as a traveling library and study center which readily converts into a mobile classroom for film and slide shows, specialized programs. ($11,000 - $14, 000).

13. (Continued)

(4) Mobile Art Teaching and Demonstration Lab, self-propelled coach, 30 ft. long, designed for use as a mobile resource facility have art materials and equipment for ceramics, plastics, graphics and so on. Readily adapted for in-service training of teachers and adult community art education programs. ($25,000 - $30,000).

(5) Mobile Remedial Reader, self-contained, self-propelled, Teaching-Testing-Training Laboratory, 29 ft. long, divided into 2 classrooms with 10 audio cubicles, and equipment ($25,000 - $30,000).

(6) Mobile Reader, self-propelled, self-contained unit with extended body and selected equipment for adaptation as (a) remedial reading, (b) counseling, (c) hearing testing (audiometer) and (d) vision testing (telebinocular) with or without power source. ($6,500 - $7,500).

(7) Bookmobile units, all sizes and types, self-propelled. ($11,000 to $23,000).

(8) Traveling Education unit, self-propelled, fully equipped with motion picture, slide projection, public speaking, entertainment or educational programs.

(9) Mobile Nutrition Unit, a fully-equipped "kitchen-on-wheels" to serve as a nutritional demonstration van.

(10) Mobile Education Coaches, self-propelled, equipped as classrooms with audio-visual equipment and facilities for group instruction; used by driver-instructors from U. S. Bureau of Mines who provide mine safety and accident-prevention training on rough back-country roads directly to mines that lack facilities for group instruction.

(11) Mobile Rural Health Clinics on wheels

(12) Mobile Veterinary Clinics, fully equipped

(13) Mobile Medical Units -- integral, coach and tractor-trailer -- all types.

(14) Mobile X-ray Units

(15) Mobile Dental Clinics

(16) Mobile Speech-Hearing-Test Clinics

(17) Mobile Film Library Units

(18) Mobile Display Sales Promotion Units

(19) Mobile Chemical Laboratory Units

(20) Mobile Art Gallery

(21) Mobile Electronic Vans

14. **Mobile Classrooms Inc.**
Fort Wayne, Indiana

Manufactures: Trailer modules which are transported to schools and attached to four classrooms which are 10 ft., 12 ft. 20 ft. and various widths, also in lengths of 38 ft. or 42 ft. and other lengths.

Typical Mobile Units:

(1) Mobile classrooms, all sizes hauled into place and skirted.
(2) Mobile Library, 10 ft. wide and 48 ft. long, with book shelves and equipment.
(3) Mobile Driver Training Unit, in widths of 8 ft. 10 ft. and 12 ft.; 52 ft. long, equipped with 12 or 18 simulators.

Budget Estimates of Cost:

(a) Mobile Classroom 20 ft. X 48 ft. = $8,700.
(b) Mobile Classroom 12 ft. X 50 ft. = $6,400.

15. **Mo-Labs, Inc.**
Alexandria, Virginia

Manufactures: Portable classrooms, in widths from 10 ft. to 24 ft. and lengths from 30 ft. to 60 ft.

Typical Uses:

(1) Mobile Science and Mathematics Laboratory (Colorado)
(2) Mobile Diagnostic and Reading Laboratory (Broward County, Florida)
(3) Mobile Library
(4) Mobile Arts and Culture Laboratory

16. **National Classrooms Company**
Division of National Mobile Leasing Corp.
Atlanta, Georgia

Manufactures:
(a) Relocatable Classroom Units transported on wheels, by tractors, in various sizes from 8 ft. by 20 ft. to maximum which can be moved over roads

(b) Sectionalized Classroom buildings (also transported on wheels by tractors) in various sizes up to 60 ft. by 120 ft.

(c) Self-propelled mobile units (integral bus-type)

Typical Mobile Units:
(1) Mobile Reading Laboratories
(2) Mobile Science Labs.
(3) Mobile Drive - O - Trainer Units
(4) Mobile Steno Labs.
(5) Mobile Dental Labs.
(6) Mobile Film Labs
(7) Transportable Libraries
(8) Transportable Teachers Lounges
(9) Transportable Language Labs
(10) Transportable Home Economics Kitchens
(11) Transportable Music Rooms
(12) Transportable Shop Rooms
(13) Transportable Classrooms
(14) Transportable Activity Rooms
(15) Transportable Offices

17. **PM & E Electronics Inc.**
East Providence, Rhode Island

Manufactures: Complete trailer with tractor unit named "Travelab", 40 ft. long and 10 ft. or 8 ft. wide, fully equipped with instructional equipment.

Typical Mobile Units:
(1) Mobile Reading units with modern reading training equipment and materials for individual and small group instruction, including testing facilities.
(2) Mobile Space Science Units with auto-instructional equipment complete with Planetarium and a library reading room.
(3) Mobile Health Citizenship Units equipped with audio-visual equipment for elementary and secondary grade education. Also used for summer educational programs.

17. (Continued)

(4) Mobile Arts and Culture Lab
(5) Mobile Library Reading Room Lab
(6) Mobile Counseling and Guidance Unit

18. Stew-Gar, Inc.
Bristol, Indiana

Manufactures: Relocatable Educational Units (transported on wheels by tractors) in various sizes up to 12 ft. wide and 52 ft. long.

Typical Mobile Units:
(1) Transportable Classroom (all types).
(2) Transportable Driver Training Units

19. Wayne Work Division
Divco-Wayne Corporation
Richmond, Indiana

Manufactures: Mobile Van-type unit, 35 ft. long by 8 ft. wide, with forward control chassis, self-propelled, self-contained and fully equipped.

Typical Mobile Uses:
(1) Mobile Instructional Laboratory with carrels for individual instruction and group television instruction.

Appendix D
Traveling Educational Units
Feasibility Study - 12-30-66

"DISCUSSION OF MOBILITY OF EDUCATION IN APPALACHIA"

The School Bus

Until the school bus was conceived, the school was located within walking distance of the students' homes and education in rural communities was therefore centered in small one or two room schoolhouses.

Mass Transport of Students

The school bus made it possible to transport students to schools and resulted in the combining of several small schools into larger schools. It also saved the travel time of students in their daily movement from home to school and school to home. Mass transportation of students became a fundamental problem of the school systems in rural communities.

Hauling of Students

"Hauling of students" in box-like yellow buses became a way of life with only one possible variation - the bus route. The use of buses was confined to the morning school rush and the after school home-bound rush.

Education During Transport

Recently, an educator in Colorado proposed using the "enroute" time on school buses to supplement the students' education by incorporating a sound system on the school bus. It was learned recently that an educator in Rochester, New York proposed the development of a travel trip bus outfitted with sound equipment and instructional materials to not only use the bus for travel education between rush hours but also effectively use the "time on the bus" for educational purposes.

The more effective use of the school bus for educational purposes has no end of possibilities for the imaginative educator, especially for an educator in a non-academically-oriented school district or in a rural area.

Modern Bus Design

Movement of students, an unquestioned requirement in this day and age, can be exploited in many ways. Theoretically the educational process can go on during the period of movement. This is made possible by advancements in technology now conspicuously available to the education field. The bus can be made comfortable; the bus can be planned for and outfitted with any form of instructional equipment; to top the possibilities, the bus can be outfitted with radio and TV to provide mass education by a communications network which is just as effective on a bus as in the classroom, in the home, or in a field, forest, building, boat or other foreign environment.

An Educational Classroom

Normally the school bus is conceived as a means of transporting a load of students. Advances in technology of mobility and audio-visual communications can now be used to conceive of the school bus as an educational classroom or, -- as stated in the brochure "Quality Education for Appalachia" -- "a classroom on wheels".

Conversion of School

Proof of thought in this direction is evidenced by the projects of imaginative educators who are "converting old school buses" into field science laboratories, mobile TV recording studios, electronic repair shops, biology laboratories, speech therapy laboratory, language laboratories and so on.

Double-Decker Educational Bus

In England a double decker bus was recently converted into a mobile language laboratory with a fully-equipped classroom below and individual teaching carrels and teacher desk on the upper deck.

Travel Education

How much education is being disseminated on tours of historic sites, national parks, historic cities and so on? The art of travel education is not new -- buses are designed for visibility of the sightseer and sound-equipped for the driver-guide's dialogue and, furthermore, equipped with "indoor plumbing". The scientific development of mobile travel education units is unlimited.

Special Purpose Mobile Units

But the school bus or the student travel bus or the tour bus are not the only possibilities for exploitation of coach type units for educational programs. Coach type units which come in various lengths can be designed for any function. At present they are used for TV studies, medical laboratories, dental clinics, chemical laboratories, air pollution laboratories, sales display units, as well as family campers and offices.

Movement of Teaching Equipment

The coach-type units can be planned to transport equipment in fixed position or in loose container, ready to be set up when the coach stops, within the coach or outside or the coach. No matter how sophisticated the equipment maybe it can be designed into a mobile unit. Experience is available for the design of mobile units outfitted with language laboratory and science laboratory equipment. It is reasonable to assume that computers (if need be), teaching machines and complex vocational shop equipment can be built into mobile units.

Trailers And Semi-Trailers

Another form of mobility is the trailer or the semi-trailer, both of which are engine-less boxes which are hauled by motor trucks on the highways. Anytime, it is desired to develop a unit of space which can be moved, a trailer is used. Trailers are available in various sizes from 8 ft to 10 ft wide to 30 ft, 40 ft and 50 ft long. Much is left to be desired by the present day design of the box-like trailer, but it has potential.

The Helihut

Other forms of mobility are derivitives of the trailer unit. The helihut is a non-wheeled military box unit which is fitted for movement by helicopter. The same unit is also fitted for movement by land through the use of a mobilizer (a series of wheels which are attached to the side of the box unit and then used to jack the box high enough to permit the unit to be hauled on highways). The same box-type helihut is often designed for water tightness so that it can be floated down river or on lakes if other modes of transportation are not available. The units are fabricated in widths of 8 ft. and lengths of from 10 ft. to 20 ft.

The Twin-Twenty Trailer

Another variation to the trailer is the socalled twin-twenty trailer combination which consists of two twenty ft. long semi-trailers which can be locked together for hauling on the highway as one 40 ft. long unit.

Expandable Trailers

Similarily, the house trailer manufacturers have developed expandable units, which have sides which roll outward to provide additional floor space and cubage. It is conceivable that such expandable trailer units can be arranged to telescope outward thus providing double or triple the floor space.

Collapsible Fold-Out Units and Portable Air-Inflatable Units

Two other types of mobile or transportable units which could conceivably be adapted to some form of educational use are: one, the collapsible fold-out unit and two, the air inflatable unit -- both of which were previously designed for use in the Modern Mobile Army's field hospital. The air inflatable types of units could be used for exhibit purposes and the air-supported spherical-shaped bubble unit could be used for planetariums to be erected, used and then moved, similar to a circus tent. A space science exhibit was housed in an air-inflatable unit and erected in various South American Cities to demonstrate the U.S. Space Science Program.

Mobile Units of the Future

These types of mobile or transportable units may not have an immediate use in the improvement of education in Appalachia at this time, but they are cited here as an omen for the future. After all, the lifetime of the students which are presently being educated will extend into the next century and these students will probably not flinch an eye when they see huge air bubbles, space ships, geodesic structures, vertical takeoff planes, air cushion vehicles, monorails and other forms of mobility or portability.

Possibilities For Mobile Units

Assuming that mobility can be used in many forms, what can it do for education? Already discussed are the broad possibilities of (a) educating students while they are being transported and (b) transporting students for the purpose of education away from school and home.

Sharing of Teachers

One use of mobility, which could become a great asset to Appalachia, involves the sharing of teaching experts, guidance specialists, career leaders and other highly valued educators by many schools and school districts. Admittedly, it is a waste of talent to permit a talented language teacher to teach other than language, or a mathematics teacher to teach other than mathematics or a remedial reading specialist to do other than remedial work.

Station Wagon Teachers

Mobility makes it possible to put "teachers on wheels" and move them from school to school. There have been many precedents where special teachers have been given station wagons to transport their teaching equipment and themselves to a series of schools. In addition, special teachers have been provided with specially-designed mobile units to provide remedial reading, speech therapy, student guidance, psychological investigations and to take special educational services to the student as well as to learn about his environment, his heridity and his associations.

The Greatest Asset in Education

It is believed that the greatest asset in education is "the teacher", the educational specialist, -- not the facility. In this respect, mobility makes it possible to use "special educators" at maximum efficiency.

Sharing Educational Equipment

It is also possible to share special equipment and facilities, such as: language carrels, business office equipment, ceramic shop equipment, physics demonstration equipment and so on. When it is obvious that such specialized equipment will not be incorporated into the average school facility for sometime to come -- which may be true in many school districts in Appalachia -- a step towards the ultimate is to share the various types of expensive sophisticated facilities. By means of mobility, it is now possible for regional educational groups to offer rural school districts excellent educational facilities on a short term basis.

Assemble Perfect Learning Situation

Mobility makes it possible to assemble the perfect combination of ingredients for a learning situation. Imagine the possibilities of bringing together at one place, at one time - the student group, its local teacher, the specialist teacher, the finest teaching environment, the best teaching equipment and well-designed teaching aids. This is the prerequisite for educational experimentation which, if conceived in its broadest aspects, shows the way to the most effective method of performing educational research.

Everyone Gains

In this situation every party to the combination gains. Obviously the students gain by the experience. The experience provides a team-teaching or cooperative teaching situation which offers the local teacher an opportunity for "in service training". It also affords the specialist teacher, who maybe a researcher-at-heart, the opportunity to experiment in teaching with average students. This type of cooperative effort is a perfect experimental environment for the research-minded educator. A situation of this type makes it possible to not only economically but speedily test out and evaluate innovations in teaching techniques.

The Educational Research Facility of the Future

In this connotation, it is not unreasonable to imagine that, the mobile educational unit with a specialist teacher may become the "educational research facility of the future". Of course, there are problems as well as advantages. The cost of developing a single mobile experimental facility may be slightly more expensive but its main advantage is that the mobile unit can be moved into new and different areas making it possible to field test the educational innovations or concepts in a broad range of student situations. This measure of flexibility has not been possible in static research experiments which often bog down because of complexity and local problems.

Teacher Training in the Classroom	The most effective improvement in education which can be made in Appalachia will be the improvement in teaching. In this respect, mobility makes it possible for teachers to secure in-service teacher training, in their own classrooms with their own students. With almost no effort to expend, no extra hours after school, no weekends or summers spent at near-by universities, -- the teachers can learn new techniques in their own classrooms.
Packaged Deal Situation	The use of mobility makes it possible for the new techniques in teaching to be introduced to local teachers in a near-perfect "package deal" situation.
Teaching by Doing	Considering the importance of teacher development and the problems facing teachers in their school districts, the most effective way of improving the teaching is probably by "teaching by doing" in the teacher's own classroom.
Multiple Effect of Teacher Improvement	For every teacher who is improved as an educator, the effect on education of students can be considered as a factor of the number of students which the teacher will teach in the next five years or more. So the dissemination of a single improvement in teacher technique will have a far greater effect than a single effort in teaching a student, although the latter need not receive less emphasis.
Classroom Teaching	The opportunities for teachers to "learn by actual teaching experiences" have been limited. Student ~~teaching is a limited experience, experimental~~ teaching is a limited experience, experimental teaching in university schools or mocked-up classroom situations is often non-typical. For this reason it seems that mobility could offer the first meaningful opportunity for experimental teaching. It should be a more effective proving ground for teachers than the "college-related, practice-teaching school".
Freeing Teachers for Making Improvements	There is another asset to mobility, hidden behind the use of travel education. This is the freeing of local teachers time for "catching ones breath" and preparing for improvements or changes in her educational program. One of the most wearing aspects of elementary and secondary education is the monotonous and continuous association with students. All that a teacher has to look forward to, at the beginning of a school term, is sixteen weeks, five days per week of meeting with the same students without a break.

Add Variety to Teaching

The teacher can be worn down by the repetitive aspects of teaching. Almost all other professions have a variety of endeavors of varying lengths and intensities which help to relieve the monotonous aspects of service. In this respect, the use of the film strip or TV has helped to diversify and lighten the teacher's educational program because it frees the teacher for short periods of time. Mobility can do the same because it can set up a variety of learning situations based on student trips and visiting teacher supplemental programs.

Improved Student-Teacher Relations

This brings up another aspect of mobile educational systems. The teachers and students can learn to know each other through the informality of relaxed travel, field trip and semi-educational situations. In fact it makes it possible for the teacher to share interests with the individual students and develop an atmosphere of respect.

Flexibility in Education

Mobility in each of the above-mentioned situations does not itself make an improvement in education. By definition of its own term, it makes possible the movement of elements or ingredients of the education process which can offer flexibility in planning for a better learning environment or situation. By means of mobility and movement, any combination of people, equipment, facility and material can be visualized and then assembled for the benefit of the teaching situation.

Improved Educational Programs

Mobility makes it possible to think in terms of improved educational programs. It is possible, of course, to design a good teaching situation for every subject and combine these situations into an excellent school.

New Types of Teaching Environments

But the state of the art is changing all of the time. Researchers and innovators are developing new types of team-teaching schools, circular classrooms, funnel shaped audio-visual viewing rooms, multi-tiered instructional labs and so on. But these are extremely expensive and usually available only to the sophisticated high-income school districts. Developed as a mobile unit the same sophisticated teaching environment can be made available to hundreds of less fortunate school districts if such unit is scheduled properly and shared by many school districts.

Supplemental Education Well-planned

Mobility makes it possible to supplement the educational program through the use of traveling and mobile units. If the supplemental education is poorly conceived, poorly planned, poorly scheduled, poorly manned or unrelated to the educational program of the local schools, it does not perform a service. This type of supplemental education does not justify mobile units and the costs of developing and operating them.

Coordination of Educational Programs

The real asset of supplemental education lies in the coordination of the supplemental program into the basic educational program for each specific subject. Through mobility, advanced planning and communication techniques -- the supplemental education program can be developed as an experience which is a fundamental part of the total sequence of learning of the subject.

Educational Sequences

Imagine for a moment the ultimate in "education by travel" being a systematic series of new sequences of education made possible by moving the students from one situation to another where the educational situations are best for introducing each educational idea. In other words, the visit to a French restaurant to study the French language; the visit to an historic site to study an historical event; the visit to an auditorium to study a speech enunciation and acoustics; the visit to a newspaper plant to study writing and so on. No end of possibilities exist if one considers it possible to move the student to the situations which provide the best climate and the best environment in which to "plant the seed of learning".

Stronger Fabric of Education

The supplemental educational program may be considered an extra thread - an extra strong thread - woven into the fabric of educational experience. Over a period of several years time there might be many threads of supplemental education woven into the fabric of the total educational experience of the student, thus strengthening or diversifying the educational opportunities of the student.

Educational Research

The procedures used for developing supplemental programs of education and mobile facilities are similar to the procedures used for developing a scientific experiment. Infact, the development of an educational research experiment could very well be done by using a mobile unit rather than a permanent classroom. In this way, the experimental teaching environment could be fabricated and taken to the home school of many groups of students.

The use of mobile facilities therefore, makes it possible to test educational innovations in the local school districts which is often more desireable than testing them in environments which are foreign to the students.

Controlled Educational Experiments

A controlled educational experiment can be designed, developed and tested by using a mobile unit. The variables in the experiment can be kept to a minimum, thus making it possible to study the effect of the innovation and the problems inherent to the unit of education. Dual experiments can be carried on by using two or more mobile units thus making it possible to identify the effect of single variables such as a different environment, a different technique, a different item of equipment and so on.

Evaluation of Experiments

The evaluation of educational experiments should be easier to make because they could be made immediately after the experience, at the end of the term, the course or the year. A delayed evaluation could be made one year later. Modes of evaluation could be developed for each peculiar type of situation and fairly-accurate techniques could be developed to evaluate the "observable improvements in education". It would speed up the expensive and time-consuming program of evaluating educational experiments.

Broadens Opportunities

The use of mobility broadens horizons and opens up new opportunities. For instance, it was discovered in one state that the use of two mobile libraries, "book mobiles", increased extensively book reading within the rural area, which was to be expected. But these book mobiles apparently caused the starting of many new rural libraries. In another case, a state museum developed a mobile unit to carry its state history and state historical memorabelia to the people and it was reported that thirteen times as many people visited the mobile unit in a year's time as had visited the base museum in a year's time.

Increasing the Use of Educational Equipment

These experiences predict the increased use of facilities, techniques and equipment if such items are exposed to the local school districts via mobile units. For instance it is reasonable to believe that the use of a mobile language carrel unit, which would be successfully exposed to hundreds of school districts, would probably cause the school districts to want similar equipment within their own schools. After having a chance to use the equipment temporarily, they would probably make an effort to procure the equipment permanently.

Manufacturer Financed Mobile Units

In this respect it is not unreasonable to believe that mobile units may be used as a procedure to be used by manufacturers to expose their equipment to schools. It is conceivable that the manufacturers of equipment would cooperate financially in the development of mobile units which use their equipment. But it would be preferrable if educational research groups and universities experimented with educational facilities and new equipment, thus introducing, in a systematic way, the best types of educational techniques with new educational equipment.

Visit Educational Problems in the Field.

Thru the use of mobile educational units, region and district educators can search for and remedy the spot educational problems probably in the pockets of poverty. For instance, a mobile guidance unit with an expert psychologist-counseler could locate educational drop-outs or poor school-preformers and go into the student's environment to examine the student-teacher-parent relationship in an attempt to correct weaknesses in the educational system and the environment.

Source of Problems

Mobility lends itself to tackling all types of educational problems at the site of the problem. It permits the specialist to take tape-recorders, audiometers, records and other equipment, as part of a laboratory, into the field to analyze problems at the root of the problem.

Group Educational Projects

Mobility offers another advantage; it makes possible group field project approaches to educational programs. In view of the increasing problem of community life, organizational existence and cooperative working programs, more stress will be required on educational programs involving group participation, which prepare the student for group living and group cooperative efforts. Mobility, which has been described above, lends itself to group efforts on field trips, in travel and in community betterment.

Group Travel Education

There is a certain bond which becomes more obvious when people participate in a moving group situation than there is in a static group situation. When they are "all in the same boat" or bus together, they appear to have a unity of purpose which is conducive to group cooperation. Each individual is inclined to accept the need for group cooperation, he cannot sit in a corner and remain "uninvolved".

Mobility of the Future

A discussion of mobility in Appalachia concentrates on the immediate problem of land mobility. A look to the future reveals the possibility of not only high-developed types of land mobility but also water and air mobility. At the risk of being called a dreamer, the Principal Investigator submits a few comments on mobility of the future.

Future Educational Boats

Mobility has been discussed in relationship to wheeled units, however, other forms of mobility may "ultimately" be considered for use in education. With regard to education by water, it is certainly possible to develop an educational boat which would travel around lakes and up rivers somewhat in the same fashion as the U.S. Hope (hospital ship) which dispenses medical assistance while it sails in international waters off foreign lands.

Future Educational Air Craft

On the other hand, flying educational units would be far more plausible in the future in Appalachia. Instances are arising to show the movement of building units, facilities, equipment and supplies by means of helicopters, flying cranes and vertical-take-off planes. Educational units could be flown to schools in the same manner that the new army field hospital, which consists of series of helicopter-liftable operating rooms, inflatable wards, ex-ray rooms and so forth, can be flown into military situations. Helicopter-portable educational units could be developed and flown into school districts where they would be readied for educational use.

Combinations of Mobility

Combinations of movement techniques may be used for education in future. The mobile unit might be conceived as an air-inflated dome which could be rolled up like a tent, moved from school to school, by land or air. When laid out on the school site, it would be inflated to form a planetarium which, when outfitted with projection equipment, would provide an ideal environment for teaching astronomy and outer space.

This makes one think of other possibilities of all types of collapsible and expandable educational facilities. It also suggests opportunities for telescopic units, fold-out units, scissors-type units and other methods of providing educational facilities and equipment.

Mobility

It is believed that "further exploration of mobility" as an aid to education would be very profitable because it would be aimed at studying the applications of mobility in greater depth which would encourage educators to think more imaginatively about creating a more modern base of education for our youth. After all, our youth will live in an era characterized by a dynamic space-age life existence rather than a static land-imprisonment type of life.

Appendix E
Traveling Educational Units
Feasibility Study - 12/30/66

"CONCEPTUAL PLAN OF OPERATIONS FOR TRAVELING EDUCATION UNITS - APPALACHIA REGION"

THE NEED FOR A CONCEPT

PART 1 - The investigation of traveling or mobile educational units, reveals that numerous mobile units have been, or are being, developed for use in the rural areas of the U.S.A. A study of many of these projects shows that mobile units can be well-designed and fabricated. It also shows that they are being successfully used by project leaders in support of educational programs.

Mobile Units Supplement the Educational Programs

Discussions with those concerned with mobile units indicates that there is a need for a system or a plan or a procedure for the operation of mobile units. Since mobile units are supplemental to the basic educational program, it appears that a comprehensive concept is required for the development of educational programs and the traveling educational units which serve the programs.

Conceptual Framework

In continuing the study of traveling units, it is considered desireable to create a "conceptual framework" which visualizes a broad offering of supplemental educational programs which are made available by a regionwide network of traveling educational units.

THE CONCEPT

PART 2 — The concept is a "System of Supplemental Educational Programs" which are based on the use of Traveling Educational Units. The System is visualized as a series of twelve supplemental educational programs which can be developed in Educational Research Centers and then offered to the school districts to broaden their local educational program.

Region-wide Service

The concept involves a "region-wide service" which would
(a) systematize the development of the mobile units and
(b) operate the units with the objective of sharing mobile facilities at a minimum cost.

Primary Emphasis on Programs

Secondary Emphasis on Mobility

The concept of "the System" is based on two hypotheses: one, that the primary emphasis of the system is placed on providing supplemental educational programs and two, that the secondary emphasis is placed on mobility (traveling or mobile units) as a means to the end, not the end itself. It is also recognized that communications will play an important role in operating this system of supplemental education.

Fleet of Specially-designed Mobile Units

The physical facilities of the program are visualized as twelve fleets of specially-designed traveling or mobile units which are made available on a scheduled (and possibly rental) basis to the local school districts to strengthen their basic educational programs and raise the aspirations of the teachers and students.

THE PHILOSOPHY OF THE CONCEPT.

PART 3 - Before presenting a master plan for "The System", it is important to examine the philosophy upon which the concept is based.

Cooperative Venture Between Local Teacher and Supplemental Teacher.

Sympathetic to Local Teaching Characteristics

Since an effective educational program is founded on a healthy student-teacher relationship, based on mutual respect and interest, the concept is considered a supplement to the educational program of the local school districts. Each unit of supplemental education is intended to be "a part of" the school's educational program. In this context, the use of supplemental education initiates a cooperative venture between the local teacher and the regional supplemental teacher. The strengthening of the basic programs with supplemental education therefore directly strengthens the local teacher which, in turn, renders the most permanent improvement within the school district. As a supplement to a school district's educational program, it is intended to be developed with accurate knowledge of the characteristics of education in the region. Since it is intended to bring to the school district "an educational opportunity" which cannot normally be provided by the local school district or the state education department, the units of supplemental education would be designed for broad use in Appalachia.

Increased Student Learning by Movement.

Increased learning, or student awareness, usually results from a change of environment, a change of teacher or a change of facility. In this concept a change is effected by (a) moving the students to another site of learning or (b) bringing a teacher to the students or (c) bringing a new educational situation to the students or (d) moving a guidance expert or specialist into a students' home area to examine the students' environment or (e) teaching during a planned travel experience.

Movement Out of Isolation

The implication of education by movement is that of combating isolation, of crossing artificial boundaries and of transcending sociological barriers -- the first step towards making the student feel "a part of" a larger unit of the total U.S.A.

Sharing the Teaching Responsibility

Sharing responsibility with expert regional teachers for a "unit of supplemental education" helps to combat the hopelessness of teaching and administering education in a less-priviledged community. Planning for, and scheduling, the unit of supplemental education provides the local school teacher and administrator with an experience in working with others.

Relieving Pressure on Local Teacher

Another benefit ensues on the day the unit of supplemental education is presented at the local school. When someone else is helping or taking over the teaching effort, the serious and dedicated teacher secures a chance to catch her breath - to catch up on course planning or study new techniques in teaching. By relieving the day-to-day pressure on the local teacher, once in a while, improvements can be made (a) in teaching, (b) in course material and (c) in programming of education. Without relief, pressure builds up within the teacher, especially the teacher who wants to up-date her techniques and improve her course material.

Systems Development of Units of Supplemental Education.

Systems approach to educational programming permits units of supplemental education to be innovated, developed, tried out and evaluated "in record time". Considerable time and money can be saved indetermining the value of the units of supplemental educational and adding them one by one to the System.

Proving Ground for Educational Research.

An outstanding potential of the System lies in its use as a proving ground for educational research. Single innovations in education can be made -- be introduced in to the supplemental education program, be altered to suit the local conditions, be further developed and, if successful, be finally prepared for standard use in educational programming in Appalachia. If the experiment is unsuccessful, the unit of supplemental education can be wiped out and forgotten with a minimum of disruption to the educational scheme, and the mobile unit can be reused.

THE SYSTEM

PART 4 - The system is comprised of elements which make it possible to not only develop units of supplemental education in educational research centers but also schedule their use via regional operational branches.

Educational Research Centers.

The comprehensive development of a unit of supplemental education requires the services of Educational Research groups which have many types of innovators, who are expert in course improvement, instructional material, special teacher training, media and equipment development and so on. A systematic approach to the development of outstanding units of supplemental education is necessary to insure that the mobile-type education improves the local educational program rather than complicates or disrupts it. Another function of the educational research center includes the design and development of the traveling or mobile educational units.

Regional Operational Branches.

The other primary elements of the system are the Regional Operational Branches which operate (and dispense) the units of supplemental education. This operation involves the development of a "Callendar of Educational Services", the scheduling of services, the staffing of the program, the operation of the fleet of mobile units and so on.

THE MASTER PLAN

PART 5 - The master plan for development of the System starts slowly with the comprehensive development of one unit of supplemental education. The development of additional units proceeds as soon as funding becomes available.

Characteristics of Program Units.

Each unit of supplemental education would be comprehensively created and a description of same would be prepared for the "Educational Callendar". The characteristics of the program unit would include such items as: content of course, special regional teacher qualifications, pre-visit preparation by local teacher and the class, description of traveling unit or other facility, planning and scheduling data, post-visit testing of students, evaluation of supplemental education and so on.

Preplanning

Unlike a fire department which responds immediately to an emergency call, the regional branch office and local school district would thoroughly plan for the program of supplemental education prior to the start of the school term. The units of supplemental education would be considered as an integral part of the course.

A Typical Program of Supplemental Education.

Several different units of supplemental education may be used in one course during the term. For instance, the local teacher could preplan a course in local American History which would include (a) two guided trips to historic sites, (b) a visit by two History mobiles and (c) a series of short audio-visual presentations.

Each experience would be scheduled as a part of the teacher's program to enrich the classroom instruction and give extra-special meaning to the textbook studies.

A Fleet Of Traveling Units.

As each unit of supplemental education is developed and added to the "Educational Callendar", it becomes a part of the System. It is conceived that 500 mobile units would be traveling thru out the region and that they would make it possible to offer twelve types of supplemental education. At any one time, many of the units would be transporting students on trips to points of interest and on "group learning" projects.

Reach into the Corners of Appalachia

The overall objective of the System would be aimed at reaching into the corners of Appalachia, at diagnosing the problem areas, at reorienting the attitudes of students and adults toward new careers and at lifting the hopes of everyone in the region. No drop out should lack for guidance, no gifted student should want for additional education, no dedicated teacher should want for free time to plan for improvement of class instruction and no adult should want for educational opportunities to enrich their community living experiences or to learn a new vocation.

Regional Network

Visualizing its ultimate development, the system would include a network of branch offices and Research Centers scattered thruout the region making available 200 or more program units of supplemental education. The objective of the operations would be to (a) discover fresh approaches to educational programming, (b) encourage innovation in learning and (c) stimulate the experimentation which is necessary to more effectively educate our youth, our teachers and our adults.

THE SYSTEM COMPRISED OF SUB-SYSTEMS

PART 6 - The system of supplemental education involves many types of educational opportunities, which differ in function and purpose. The system is therefore divided into sub-systems which are developed separately because they require special types of expert teachers or special types of mobile units.

List of Sub-Systems

To show the type of supplemental education which can be developed in Appalachia to carry out the goals of the Appalachia Educational Laboratory, Inc., twelve sub-systems are briefly described in subsequent paragraphs, and listed as follows:

Sub-system 1 - Supplemental Academic Education
Sub-system 2 - Supplemental Vocational Education
Sub-system 3 - Field Projects Education
Sub-system 4 - Group Travel Education
Sub-system 5 - Planned "In-transit" Education
Sub-system 6 - Remedial Education
Sub-system 7 - Career Guidance
Sub-system 8 - Performing Arts Education
Sub-system 9 - Special Exhibits Education
Sub-system 10 - Physical Education
Sub-system 11 - Health Education
Sub-system 12 - Community Life Education.

SUPPLEMENTAL ACADEMIC EDUCATION

PART 7 - Sub-system 1 - This program is aimed at providing educational program assistance to local teachers and administrators for the purpose of strengthening course content, instructional material, teaching techniques and teaching equipment in the academic courses.

The program is intended to be a comprehensive source of support for the teachers of academic subjects. It is intended to help a teacher improve the course via the use of new instructional aids, new media, new facilities and so on. It is also intended that the mobile units be used to demonstrate new teaching techniques. Typical traveling or mobile units which could be designed and developed to use in this supplemental program are:

(1) Mobile Mathematics Laboratory
(2) Mobile Language Laboratory
(3) Mobile Reading Laboratory
(4) Mobile History Laboratory
(5) Mobile Biology Laboratory
(6) Mobile Physics Laboratory
(7) Mobile Chemistry Laboratory.

SUPPLEMENTAL VOCATIONAL EDUCATION

PART 8 - Sub-system 2 - This program is aimed at providing educational program assistance to local vocational teachers and administrators for the purpose of strengthening course content, instructional material, teaching techniques and teaching equipment. The program is intended to be a comprehensive source of support for the various types of vocational teachers. Thru the use of traveling educational units, the local vocational teachers can provide many types of experiences to broaden the outlook of boys and girls who are planning to adopt a vocation when they leave secondary school. The types of vocational shops are limited only by the types of vocations. Typical traveling units are:

(1) Mobile Woodworking Shop
(2) Mobile Metal Working Shop
(3) Mobile Industrial Arts Shop
(4) Mobile Business Arts Shop
(5) Mobile Secretarial Unit
(6) Mobile Food Preparation Unit
(7) Mobile Clothing Unit
(8) Mobile Ceramics Shop
(9) Mobile Painting Studio
(10) Mobile Jewelry Laboratory
(11) Mobile Weaving Studio
(12) Mobile Sculpture Studio
(13) Mobile Photographic Processing Studio

FIELD PROJECTS EDUCATION

PART 9 - Sub-system 3 - This program of supplemental education is aimed at giving groups of students an experience in group study in field situations. It is believed that the concept of group educational projects in the field can be effectively adopted by the Appalachia Region because of the attractive inherent characteristics of rural mountain areas and the basic interests of people in these areas.

These types of field projects would (a) broaden their knowledge of healthful field-type careers, (b) encourage their cooperation and teamwork and (c) expose them to new disciplines, new techniques and new horizons in which they can make contributions as "support personnel" or eventually key personnel or professional personnel. Such a field experience under foresters, geologists, park recreationists, surveyors and other semi-teaching personnel may encourage students to look into field-type careers.

The special equipment would be assembled into mobile unit -- one half bus and one half equipment-- and this unit would be manned by an expert dedicated to stimulating youth to consider careers in his field. The typical traveling educational units are, as follows:

(1) Mobile Water and Stream Pollution Unit
(2) Mobile Geology Unit
(3) Mobile Forestry Unit
(4) Mobile Park Recreation Unit
(5) Mobile Forestry Unit
(6) Mobile Air Pollution Unit
(7) Mobile Sanitary Engineering Unit
(8) Mobile Surveying Unit
(9) Mobile Highway Engineering Unit
(10) Mobile Agriculture Unit
(11) Mobile Biology Unit
(12) Mobile Marine Biology Laboratory
(13) Mobile Veterinary Unit
(14) Mobile Geographic Unit
(15) Mobile Building Construction Unit

GROUP TRAVEL EDUCATION

PART 10 - Sub-system 4 - This program is aimed at combating isolation and building up pride and understanding of the Appalachia region by means of planned travel experiences which involve pre-trip study, enroute audio-visual program, educationally-guided touring and return-route testing. The program would consist of educationally-oriented guides and mobile buses, equipped with audio-visual equipment for use in "enroute instruction" and group communications.

The mobile buses would be used to take day trips to (a) Niagara Falls to learn the fundamentals of water supply, hydropower, park recreation and so on, or (b) historic sites in the Shenandoah Valley to learn Civil war history, geography, and so on, or (c) State and National Parks to learn park management, natural science, recreation, geology and so on.

The traveling educational units, which may vary in size, have various types of equipment, or be converted school buses, are as follows:

(1) Mobile Sight Seeing Bus,
    with TV and radio.
(2) Mobile Travel Bus,
    with individual response system
    and/or sound system for group
    discussion.

PLANNED IN-TRANSIT EDUCATION

PART 11 - Sub-system 5 - This program is aimed at using "the time students spend on school buses" more effectively for (a) educational purposes, (b) preparing students for education,

(c) amusement and/or (d) relaxation. By equipping school buses or, in the future, developing school buses with instructional equipment, region-wide programs could be developed to educate students in-transit. By means of TV, radio or recordings, planned programs could be developed on music appreciation, mathematical gaming, educational quizzing, community affairs, news interpretation, health education, history units, culture capsules and so on. The traveling educational units may be converted school buses or newly developed units, such as:

(1) Mobile Educational Units
(2) Mobile TV Units
(3) Mobile Movie Units
(4) Mobile Group Instruction Units

REMEDIAL EDUCATION

PART 12 - Sub-system 6 - This program is aimed at supplementing the school districts' educational program with a planned program of tutoring and corrective learning to assist students and their teachers with various forms of remedial education. This program can be as broad-based as budgets permit.

Mobile units, manned by special teachers, would be used to seek out and provide remedial education to students in the basic academic subjects (reading, writing, speech, arithmetic).

Mobile units, manned by educational psychologists, would be used to seek out socially-maladjusted students and dropouts -- and provide special diagnostic services to assist the local teachers and parents.

Lastly, mobile units, manned by guidance counselers, would be used to supplement the local school districts' program of guidance in personal development and in continued academic or vocational education. Typical special traveling educational units are, as follows:

(1) Mobile Speech Therapy Unit
(2) Mobile Remedial Reading Unit
(3) Mobile Writing Laboratory
(4) Mobile Mathematics Unit
(5) Mobile Guidance Unit

CAREER GUIDANCE

PART 13 - Sub-system 7 - This program is aimed at exposing students to various careers by means of "on-the-spot career counseling" by specialists who travel in career laboratories which allow the student to experiment in a career by "learning by-doing" some features of the career. It is believed that industries and industrial associations who have a steady demand for new vocational personnel would assist in the development and staffing of mobile career units designed to permit students to become familiar with the career.

Typical traveling educational units, are:

(1) Mobile Machine Shop
(2) Mobile Ceramics Shop
(3) Mobile Electronics Shop
(4) Mobile Welding Shop
(5) Mobile Surveying Unit
(6) Mobile Chemistry Laboratory
(7) Mobile Physics Laboratory
(8) Mobile Engineering Drafting Unit
(9) Mobile Nursing Unit
(10) Mobile Dietic Units
(11) Mobile Hospital Unit

PERFORMING ARTS EDUCATION

PART 14 - Sub-system 8 - This program is aimed at exposing the students and adults of the region to "the performing arts", as a career, as an advocation and as a profession. It is proposed that traveling units be manned by musicians, actors, dancers and other performing artists and be equipped with theatre sets, sound equipment and other equipment to not only stage performances but to permit students to cooperate in performances, aid in support services and assume supporting roles. The objective would be to dignify the performing arts as a career and the entertainment industry as an area of interest which is personally rewarding to those who make it a life-time activity.

Typical traveling education units are:

(1) Mobile Theatre Unit
(2) Mobile Dance Unit
(3) Mobile Orchestra Unit
(4) Mobile Musical Show Unit
(5) Mobile Entertainment Unit
(6) Mobile Movie Production Unit
(7) Mobile TV Studio

SPECIAL EXHIBITS EDUCATION

PART 15 - Sub-system 9 - This program is aimed at bringing art exhibits, museum exhibits and science exhibits to the students of the region to enrich their understanding of culture and history.

Seeing original art and witnessing well-prepared exhibits stimulates students in the appreciation of art, science and technology.

The possibilities for special exhibits are unlimited. Many such mobile exhibits are already available. Many associations and agencies would develop mobile units if requested.

This program would be planned to make available special exhibits which have a region-wide interest and contribute to the teaching of art, science and history. First, supplemental educational programs would be developed to assist local teachers. Second, the mobile units would be developed and organized into a system to render the desired units of education. Subjects for supplemental education would be; colonial history and culture, indian crafts and history, natural history of the region, space science, renaissance art and so on.

(1) History Mobiles (various)
(2) Art and Painting Mobiles (various)
(3) Sculpture Mobiles (various)
(4) Art and Crafts Mobiles (various)
(5) Natural History Mobile
(6) Space Science Mobile
(7) Hand-weaving Mobile

PHYSICAL EDUCATION

PART 16 - Sub-system 10 - This program is aimed at expanding the opportunities of students in the field of physical fitness and sports. It is intended to enhance the various endeavors and careers which border on the physical development of the human body such as: the sports industry, the entertainment field, the recreation field, the professional sports and the individual recreation sports.

Typical traveling educational units, are:

(1) Mobile Gymnastics Unit
(2) Mobile Sports Unit
(3) Mobile Physical Fitness Unit
(4) Mobile Sauna Unit
(5) Mobile Hunting and Fishing Unit
(6) Mobile Human Performance Laboratory

HEALTH EDUCATION

PART 17 - Sub-system 11 - This program is aimed at stimulating the student to acquire good health habits. It is intended to demonstrate and educate the student in accident prevention, dental care, personal safety, personal hygiene and so on.

Although various programs in health may be available to schools, the development of supplemental education in health is intended to coordinate the various efforts and integrate them into an effective unit of education which would be beneficial to the schools of the region.

Typical traveling education units, which may or may not already be available, would be organized into the subsystem, are:

(1) Mobile Dental Clinics
(2) Mobile Medical Clinics
(3) Mobile Health Hygiene Units
(4) Mobile Accident Prevention Units
(5) Mobile Heart Unit
(6) Mobile Infant Care Unit
(7) Mobile Marriage Counseling Unit
(8) Mobile Driver-Training Unit
(9) Mobile Nutrition Unit
(10) Mobile Veterinary Unit
(11) Mobile Dispensary Unit
(12) Mobile Health Disaster Unit

COMMUNITY LIFE EDUCATION

PART 18 - Sub-system 12 - This program is aimed at the group education of students and adults in family living in democratic processes, in community development. in town planning, in highway safety and so on. This type of supplemental education is intended to improve the social responsibilities and social awareness of the students in their everyday living, by educating groups of students in community problems and community organizations. Typical traveling educational units are:

(1) Mobile Elections Laboratory
(2) Mobile Town Planning Unit
(3) Mobile Transportation Planning Unit
(4) Mobile Water and Sewage Planning Unit
(5) Mobile House Development Unit
(6) Mobile Landscape Unit
(7) Mobile Highway Safety Unit
(8) Mobile Fire Protection Unit
(9) Mobile Town Recreation Unit
(10) Mobile Food Buying and Preparation Unit
(11) Mobile Police and Public Safety Unit

PROGRAM DEVELOPMENT

PART 19 - The key to the overall concept is programming - "the programming of supplemental educational units". Being elements of the total system, each unit would be developed comprehensively and scheduled for operations as soon as it becomes ready for use. Each program unit would have an objective, a general description of course content, detailed course material, instructional aids, equipment requirements, mode of instruction, details of facility design, mobile unit operating instructions, special teacher qualifications, teacher instructions, student testing and grading,program evaluation and so on.

The creation of a research team to master-mind the System of region-wide Supplemental Education becomes an important step in the development of "the System".

MOBILE UNIT DEVELOPMENT

PART 20 - After the unit of supplemental education is conceived and the instructional process is planned, the most appropriate facilities and equipment are studied. A traveling or mobile unit would be designed, fabricated and outfitted for use in providing the specific experience in supplemental education.

Imaginatively Designed Mobile Units

It is desirable to develop a creative and imaginatively-designed unit based on the most up-to-date theories of instruction and facilities design so that the student will experience an unforgetable situation. The custom-design of the mobile unit permits the designers and research educators to innovate and develop experimental units. These units will subsequently become "standards" for fixed instructional environments when new school buildings are designed for the region. The mobile unit would be outfitted with modern furniture, well-suited furnishings and new media equipment.

OPERATION OF THE SYSTEM OF SUPPLEMENTAL EDUCATION

PART 21 - Each of the twelve supplemental educational programs, described above, would be made available to the individual school administrators thru a program of educational offerings. - An "Educational Calendar for Appalachia". The operating procedure may follow a sequence, as suggested below.

Circular of Information

A description of each program unit would be sent to local teachers and school districts by a "circular of information" which would be sufficiently complete so that the local school teacher could plan the educational program using the program unit.

Coordinating Supplemental Education

The teachers of the school district would study the description of the unit of supplemental education and, if desired, coordinate the program with the course. Personnel from the regional branch office would assist the local teachers in using the supplemental programs, by means of correspondence or visits to the school.

Scheduling

The unit of supplemental education would be scheduled. Such scheduling would involve having the mobile unit and an expert teacher at the right place and right time. It also involves the correspondence and planning necessary to send course preparation material and data ahead of time and to have power facilities and parking space ready when the mobile unit arrives.

Post-visit Evaluation

The local teacher would test the students on their learning experience after the instruction is given. The teaching specialists, local teacher and administrator would evaluate the benefit of the supplemental program, both immediately and several months after the visit.

Itineraries

The effective planning for a mobile unit requires time to work out a reasonable itinerary or schedule for each specialist teacher and each mobile unit. Therefore, preplanning of operations would start well in advance of the term in which the program unit is desired.

FUNDING

Corporate Financing

PART 22 - Since the design and fabrication of a mobile unit involves a sizeable expenditure, it is proposed to fund this part of the program separately. It is expected that industrial corporations, industrial associations, museums, government agencies, commercial groups and foundations would finance development of the mobile units, assuming that the mobile units provide the type of education in which the group is interested.

Rental Fees

Government Support

It is also expected that the local school districts and community benefactors would pay a rental fee to use certain units of supplemental education in their program of education. In the case of poor school districts, it is believed that government support could be obtained to enrich the educational opportunity of the district and assist the local teachers.

OBSERVABLE IMPROVEMENT IN EDUCATION

PART 23 - As a part of a regional program to make innovations in education and combat isolation, the concept of the System of Supplemental Educational Programs has a "built-in method for evaluation". The primary objective of the program is to make an observable improvement in education in Appalachia.

Evaluation and Appraisal

It is intended (a) that each experiment be considered as a topic of research or an innovation and (b) that it be fully evaluated to determine whether it provides an "observable improvement in education". Unlike many educational experiments which are complicated and full of variables, these types of supplemental education experiments offer an excellent mode for introducting new ideas in education, new teaching techniques, new equipment and new environmental conditions. In this respect, the program lends itself to on the spot evaluation and quick appraisal.

Exhibit 1

1. Subject: TRAVELING EDUCATIONAL UNITS

A Feasibility Study of the Use of "Traveling Educational Units "(TEU)
To Improve the Quality of Education in Appalachia

2. Principal Investigator: C. Herbert Wheeler, Architect
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4. Theme: The Laboratory has requested Wheeler to make a preliminary investigation of the "development of mobile teaching units, which are in effect, classrooms on wheels. These mobile units can be outfitted to serve such diverse functions as reading laboratories, planetariums, and movable kindergartens, and can be used to bring the benefits of the most modern educational materials and programs to isolated communities where people are often unable or unwilling to ask for the assistance they need."

5. Abstract of Investigation: An investigation will be made to determine the functional performance and design characteristics of Traveling Educational Units (TEU) which could be used throughout Appalachia to bring specialized school facilities to local schools foe the purpose of raising educational aspirations and combating regional isolation. A search will be made for recent or current experiments in using mobile or traveling units for educational purposes. A second search will be made to determine the fabricators of mobile equipment and their experience in the design and assembly of bookmobiles, art mobiles, blood mobiles, traveling science exhibits and similar mobile equipment.

6. Objective of Study: The investigation will result in an annotated bibliography which will describe the various experiments which have been or are being made in placing "educational facilities on wheels."

7. Breadth of Approach: Since the fundamental objective of the TEU is to share expensive facilities among many schools which may not be able to afford the facilities, it is proposed to consider many different solutions to the problem, such as:

   a. Modified trailers, trucks, buses and mobile units adapted with educational equipment, such as: electronic classrooms, carrels, language learning units, industrial arts shop equipment, chemistry laboratory equipment, science exhibits, etc.

   b. Modified one piece shells, such as man-size crates and vans which are moved on dollies, mobile and lift trucks and mobilizers.

   c. Expandable, joinable, foldable, telescoping and other units which can be used to not only convey the educational equipment but enlarge-in-the-field to permit student use of the equipment.

8. New Approaches: It is hoped that this investigation will reveal new approaches for bringing educational facilities to the individual schools in Appalachia.